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ABSTRACT

This study was undertaken to identify the differences between asthmatic and nonasthmatic children, ages nine through twelve, on self-concept and attitudes toward physical education. It was anticipated that children having an asthmatic condition might reflect significantly different scores from their nonasthmatic peers at least partially attributable to their perceptions of themselves as asthmatic. Related literature was reviewed under the following four headings: identification and measurement of self-concept in children; self-concept and physical fitness; attitudes toward physical education; and asthma, self-concepts, and attitudes toward physical education. Three major instruments were used in the collection of data: The Way I Feel About Myself Self-Concept Scale, Children's Attitude Inventory Toward Physical Education, and a paired comparison instrument. Analysis of the collected data showed that asthmatic and nonasthmatic children demonstrate no significant differences in self-concepts, attitudes toward physical education, and rankings of physical education as measured by the instruments used in the study. It appears, therefore, that much of the literature that suggests that wheezing, coughing, and other exercise-induced asthmatic symptoms may influence self-concept and attitudes toward physical education is inaccurate. An extensive bibliography is provided. (DS)

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A COMPARISON OF ASTHMATIC AND NON-ASTHMATIC CHILDREN ON MEASURES OF SELF-CONCEPT AND ATTITUDES TOWARD PHYSICAL EDUCATION

A THESIS

SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF MASTER OF ARTS IN THERAPEUTIC RECREATION IN THE GRADUATE SCHOOL OF THE TEXAS WOMAN'S UNIVERSITY

COLLEGE OF

HEALTH, PHYSICAL EDUCATION, AND RECREATION

BY

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DENTON, TEXAS

AUGUST 1977

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U.S. DEPARTMENT OF HEALTH, EDUCATION & WELFARE
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CHAPTER I

INTRODUCTION TO THE STUDY

The American Lung Association reports that asthma is probably the most common pediatric disorder among children requiring hospitalization, affecting some 1.5 million children in the United States.[1] This represents a serious problem with profound implications. Not only does asthma account for 25 percent of grade school and high school absenteeism and 7,000 deaths annually in the United States alone,[2] but according to Scherr and Frankel, asthma "may result in great mental suffering and loss of much initiative and confidence which aid in . . . personality adjustment to life."[3]

Considerable negative feelings about themselves may accrue when children are told that they cannot participate or are physically unable to enjoy the same activities as

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[1]Lucille Fisher, "New Frontiers in the Treatment of Asthma in Children," American Lung Association Bulletin 62 (June 1976): 2.

[2]W. M. Gold, "The Newer Aspects of Asthma," California Medicine 113 (October 1970): 17.

[3]Merle S. Scherr and Lawrence Frankel, "Physical Conditioning Program for Asthmatic Children," Journal of the American Medical Association 168 (July 1958): 1.

others simply because they have asthma. Combs and Snygg contend that man is constantly searching to see himself as more adequate and that the perceptions he is able to make determine whether or not this searching will prove successful.[1] According to Wylie, most self-concept theorists agree that the body characteristics to which the subject attaches negative worth may be expected to undermine his self-regard.[2] Caskey and Felker add, "If a positive self-image is important, teachers of physical education must take an active part in body image formation."[3]

Physical education class is the most likely place for exercise induced asthma to occur during the school day because of the pulmonary exertion that may be required. In addition physical education classes are often held out-of-doors where pollens and other allergens abound. For these reasons, the child experiences the increased probability of asthma attacks which partially or completely exclude him from most physical activity. The child must

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[1]Arthur W. Combs and Donald Snygg, Individual Behavior (New York: Harper Publishing Company, 1959), p. 46.

[2]Ruth C. Wylie, The Self-Concept (Lincoln, Nebraska: University of Nebraska Press, 1961), p. 159.

[3]Shelia R. Caskey and Donald W. Felker, "Social Stereotyping of Female Body Image by Elementary School Age Girls," Research Quarterly 42 (October 1971): 251.

cope not only with his asthma, but with the fact that he is visibly different from other children in his own mind and the eyes of others.

Franklin[1] and Claverie[2] after having completed research projects on asthmatic children and physical activity, both recommended further studies investigating psychological traits and changes in these traits after participation in an activity program. This recommendation seems to parallel the findings of Kay, Felker, and Varoz whose studies have shown that a positive relationship exists between sports interests and abilities and self-concept.[3]

Statement of the Problem

In response to the above findings and recommendations, this investigation was an attempt to define the relationships between self-concept, attitude toward

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[1]Janice Carrie Franklin, "An Experimental Study of Physical Conditioning for Asthmatic Children" (M.A. thesis, Texas Woman's University, 1971), p. 97.

[2]Elsa Dorothea Claverie, "Change of Asthmatic and Non-Asthmatic Children in a Swimming Program" (M.A. thesis, Texas Woman's University, 1971), p. 105.

[3]Richard S. Kay, Donald W. Felker, and Ray O. Varoz, "Sports Interests and Abilities as Contributors of Self-Concept in Junior High School Boys," Research Quarterly 43 (May 1972): 208.

physical education, and the asthmatic condition. The problem was to identify the differences between asthmatic and non-asthmatic children, ages nine through twelve, on self-concept as measured by The Way I Feel About Myself Self-Concept Scale,[1] and attitudes toward physical education as measured by the Children's Attitude Inventory Toward Physical Education[2] and a paired comparison inventory of school subject preferences

This investigation was a descriptive study of 50 asthmatic and 741 non-asthmatic children attending three elementary schools in the Denton Independent School District system of Texas. All asthmatic and non-asthmatic children enrolled in grades four, five, and six of the three schools were administered the instruments during February and March of 1977. Statistical treatment of the data focused upon differences between asthmatic and non-asthmatic children concerning self-concept and attitudes toward physical education. It was anticipated that children having an asthmatic condition might reflect

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[1]Ellen V. Piers and Dale B. Harris, "Age and Other Correlates of Self-Concept in Children," Journal of Educational Psychology 55 (April 1964): 91-95.

[2]Claudine Sherrill and Martha Toulmin, "A Children's Attitude Inventory Toward Physical Education," unpublished manuscript, Texas Woman's University, March 1977.

significantly different scores from their non-asthmatic peers at least partially attributable to their perceptions of themselves as asthmatic.

Limitations of the Study

The study was subject to the following limitations: (1) all elementary school fourth, fifth, and sixth grade boys and girls who were enrolled in three selected public schools in Denton, Texas, during the spring semester of 1977; specifically there were 6 asthmatic and 75 non-asthmatic nine year olds, 18 asthmatic and 255 non-asthmatic ten year olds, 18 asthmatic and 299 non-asthmatic eleven year olds, 8 asthmatic and 104 non-asthmatic twelve year olds, and 8 non-asthmatic thirteen year olds; (2) the degree to which the sample of asthmatic children was representative of all asthmatic children; (3) the cooperation of the elementary school principals and teachers in administering the Children's Attitude Inventory Toward Physical Education, The Way I Feel About Myself Self-Concept Scale, and the Paired Comparison Inventory; (4) the cooperation of the subjects in honestly expressing their feelings and attitudes on the three tests; and (5) the reliability and validity of the three instruments.

Definitions and Explanations of Terms

For the purpose of clarification, the following definitions and explanations of terms have been established for use throughout the present study:

Asthma was defined as the condition of

> impairment to the free flow of air, the anatomical basis for which is mucosal swelling, hypersecretion of mucus, and smooth muscle hyperactivity . . .[1]

Attitude was defined by Edwards as ". . . the degree of positive or negative affect associated with some psychological object."[2] He also states in further explanation,

> An individual who has associated positive affect or feeling with some psychological object is said to like that object or to have a favorable attitude toward the object. An individual who has associated negative affect with the same psychological object would be said to dislike that object or to have an unfavorable attitude toward the object.

Children's Attitude Inventory Toward Physical Education (CAIPE) can be described as an instrument designed to measure the expressed attitudes of elementary

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[1]Joint Committee of the Allergy Foundation of America and the American Thoracic Society, Asthma (New York: National Tuberculosis and Respiratory Disease Association and the Allergy Foundation of America, 1973), p. 9.

[2]Allen Edwards, Techniques of Attitude Scale Construction (New York: Appleton-Century-Crofts, Inc., 1957), p. 2.

school children toward physical education.[1] The fifty written items concerning feelings and attitudes about physical education are scored according to a seven point Likert scale.[2] The Children's Attitude Inventory Toward Physical Education is a 1977 revision of an original instrument developed by Toulmin who established validity and reliability on 315 children.[3] The validity was tested by the method of known groups. The reliability coefficient, determined by the odd-even correlational technique, was .91.

The Way I Feel About Myself Self-Concept Scale can be explained as a wide-range, self-concept instrument which consists of eighty statements about the self to be answered "yes" or "no." Results can be placed into the following categories: Behavior, General and Academic Status, Physical Appearance and Attributes, Anxiety,

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[1]Sherrill and Toulmin, "A Children's Attitude Inventory Toward Physical Education," p. 1.

[2]Rensis Likert, "A Technique for the Measurement of Attitudes," Archives of Psychology 22 (1932): 5-43.

[3]Martha Lee Burch Toulmin, "The Development of an Original Instrument to Measure the Expressed Attitudes of Children Toward the Elementary School Program of Physical Education" (M.A. thesis, Texas Woman's University, 1973).

Popularity, and Happiness and Satisfaction.[1] Bentler reports .71-.77 reliability using the test-retest method. He also states that peer and teacher validity have been shown high enough to be used as a valid instrument.[2]

Paired Comparison is "a method in which the subject is presented with a list of items . . . and is asked to judge each item in turn with every other item in terms of which he prefers. The judgments of the subjects can be manipulated so that each activity can be assigned a scale value."[3] The instrument used in this study allowed comparison of the ten subjects offered in the elementary school curriculum in Denton, Texas: handwriting, science, reading, social studies, art, music, mathematics, spelling, English Grammar, and physical education. All of the school subjects were ranked according to the number of times the children chose them, but only the rankings assigned to physical education were compared statistically to determine differences between asthmatic and non-asthmatic groups.

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[1]Piers and Harris, "Age and Other Correlates of Self-Concept in Children," pp. 91-95.

[2]Peter M. Bentler, The Seventh Mental Measurements Yearbook, ed. Oscar K. Buros (Highland Park, New Jersey: The Gryphon Press, 1972), p. 306.

[3]Deobold B. Van Dalen, Understanding Educational Research, 3rd ed. (St. Louis: McGraw-Hill Book Company, 1973), p. 344.

Hypotheses of the Study

The following hypotheses were examined at the .05 level of significance:

1. There is no significant difference between asthmatic and non-asthmatic children on self-concept as measured by The Way I Feel About Myself Self-Concept Scale

2. There is no significant difference between asthmatic and non-asthmatic children on expressed attitudes toward physical education as measured by the Children's Attitude Inventory Toward Physical Education

3. There is no significant difference between the frequency of rankings of physical education one through ten on the paired comparison inventory by asthmatic and non-asthmatic children

4. There is no significant difference between the frequency of rankings of physical education one through ten on the paired comparison inventory by males and females

5. There is no significant difference between the frequency of rankings of physical education one through ten on the paired comparison inventory by asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females

6. There are no significant relationships between the following pairs of variables: self-concept and age, CAIPE scores and age, rankings of physical education and age, sex and self-concept, sex and CAIPE scores, sex and rankings of physical education, asthmatic status and self-concept, asthmatic status and CAIPE scores, and asthmatic status and rankings of physical education

Chapter II presents the review of literature that was found to be pertinent to this investigation.

CHAPTER II

REVIEW OF RELATED LITERATURE

In searching through the literature, several areas seemed related to the present investigation. No evidence was found that the current research replicates any completed study. It does, however, entail elements that have been studied thoroughly in a variety of contexts.

Historically, the connection between the physiological and the psychological status of an individual has been noted at least as early as the Golden Age of Greece according to Avedon.[1] Exercise and recreation were ordered as treatment for both physical and mental illness and for prevention of dysfunction. The concepts of the Greeks concerning mental and physical health spread to the Romans, whose health practices greatly influenced Europe during the Middle Ages.

In order to view the current literature in an understandable sequence, the major elements have been placed into broad categories. It is hoped that these

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[1]Elliot M. Avedon, Therapeutic Recreation Service: An Applied Behavioral Science Approach (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1974), p. 5.

categories will not be seen as completely different parts, but that the completed review will be conceptualized as an organized whole with each section adding to the total picture. The categories are Identification and Measurement of Self-Concept in Children; Self-Concept and Physical Fitness; Attitudes Toward Physical Education; and Asthma, Self-Concepts, and Attitudes Toward Physical Education.

Identification and Measurement of Self-Concept in Children

The following review of literature examines the current publications concerning the identification and measurement of self-concepts of children. The review will be limited to items published from 1963 through 1977. There are two major reasons for placing these limitations. Very little research on the self-concepts of children had been published prior to 1963, and most of that done, according to Wylie, is questionable.[1]

Wylie's compendium of self-concept research covers both the theoretical aspects of self-concept and a variety of relationships between entities and the self-concept. She cites over 450 research studies and discusses their implications in her original 1961 edition.[2] Her

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[1]Wylie, The Self-Concept, p. 197.

[2]Ibid., p. 198.

conclusions include the following: that the amount of work applied to the study of self-concept up until 1961 had yielded little outcome; that persons studying the self-concept had, in general, poorly defined what they were looking for; that the theoretical constructs used had generally not been effectively changed to measurable terms; that the methodology used in a large number of the studies was inconsistent; and that the self-concept construct was important enough to warrant additional well-planned, well-defined research.[1]

One of the major issues of self-concept research has been the use of self-report as a means of measuring the self-concept. Combs, Soper, and Courson contended that self-report is not the same as self-concept.[2] The authors held that self-report is dependent upon six variables not necessarily associated with the self-concept. Those variables were: the clarity of the individual's awareness, the availability of adequate symbols for expression, the willingness of the individual to cooperate, the social expectancy, the individual's

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[1]Ibid., p. 197.

[2]Arthur W. Combs, Daniel W. Soper, and Clifford C. Courson, "The Measurement of Self-Concept and Self-Report," Educational and Psychological Measurement 23 (Autumn 1963): 493-500.

feeling of personal adequacy, and his feelings of freedom from threat.[1]

In an attempt to provide some empirical evidence for their statements, Combs et al. gave fifty-nine sixth graders a device that the authors developed called the Self-Concept/Self-Report Scale. The instrument contained eighteen pairs of positive and negative statements about the self. Each child was to circle the appropriate number of a one to five continuum as the statements applied to him. Four judges, who had spent the previous nine months working together observing the self-concepts of children and had demonstrated statistically significant reliability, were used to determine the observed self-concepts of the children. The judges rated each child on the Self-Concept/Self-Report Scale after watching the child in three thirty minute sessions--once in the classroom, once on the playground, and once in a "picture story test" interview. Correlations between the children's statements and those of the judges ranged from -.199 to +.366. The correlations were averaged and converted to z scores. The mean was .114, not statistically significant, thereby supporting

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[1]Ibid., p. 494.

the theory that although self-report may be valuable, it is not the same as the self-concept.[1]

Bennet, in 1964, developed a Q-sort technique for measuring the self-concepts of elementary school children.[2] Her instrument was an outgrowth of Hilden's research[3] and included modified statements from Rogers and Dymond.[4] Four qualified judges separated 108 statements into one of the following stacks: those showing high self-concept, those showing inadequacy of or low self-concept, or those not representative of self-concept or inappropriate for school children. The fifty-two statements which all four judges agreed on as showing either low or high self-concept were randomly placed into two forms of the test. The child was to place each card with a statement on it into one of five pockets in front of him: Most like me, Quite like me, Not sure if like or not like me, Quite unlike me, and Most unlike me. Values were assigned to cards sorted in each

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[1]Ibid., p. 499.

[2]Virginia D. C. Bennet, "Development of a Self-Concept Q-sort for Use with Elementary Age School Children," Journal of School Psychology 3 (Spring 1964): 19-24.

[3]A. H. Hilden, Manual for Q-sorts and Random Sets of Personal Concepts (St. Louis: Washington University Press, 1954). (Mimeographed.)

[4]Carl R. Rogers and Rosalind Dymond, Psychotherapy and Personality Change (Chicago: University of Chicago Press, 1954).

pocket. Form Two was administered to 198 sixth graders. An achievement score was taken from school records, as was a previously measured I.Q. score. Correlations were found between this measurement of self-concept and I.Q. ($r=.25$, $p<.01$) and between self-concept and school achievement ($r=.34$, $p<.01$). Bennet concluded that the Q-sort technique used was especially valuable in determining if feelings of inadequacy or if the inability to master school situations came first.[1] The answer to that particular question could more accurately predict the type of remedial help needed.

Brookover, Thomas, and Patterson also developed an instrument to measure the self-concepts of children.[2] The "Self-Concept of Ability Scale" was an eight item multiple choice questionnaire to measure self-concept. Reliability was established at .82 for males and .77 for females. Brookover et al. studied 513 males and 537 females in the seventh grade. In addition to the Self-Concept of Ability Scale, I.Q. scores were taken from school records. Grade point average was used as an indicator of academic performance. Each student was asked to list the important people

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[1]Bennet, "Development of a Self-Concept Q-sort for Use with Elementary Age School Children," p. 23.

[2]William B. Brookover, Shailer Thomas, and Ann Patterson, "Self-Concept of Ability and School Achievement," Sociology of Education 37 (Spring 1964): 271-278.

in his life and who was concerned about his school work. Then the students were asked how the significant people listed would fill out the questions posed in the Self-Concept of Ability Scale when considering the student's academic performance. Mothers, fathers, teachers, and peers were the most commonly named. Correlations between the student's perception of his own abilities and his perceptions about the significant others' image of him were as follows: Mother's image, r=.50; Father's image, r=.52; Teacher's image, r=.55; Peers' image, r=.47; and a combination of all of the four significant others named, r=.58.[1]

The self-concepts of children in relation to their intelligence, achievement, interests, and anxiety were studied by Bledsoe.[2] His subjects were 271 fourth and sixth grade boys and girls. To measure self-concept, Bledsoe modified the Bills Index of Adjustment[3] and made it into a checklist of thirty trait descriptive adjectives.

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[1]Ibid., p. 278.

[2]Joseph C. Bledsoe, "Self-Concepts of Children and Their Intelligence, Achievement, Interests, and Anxiety," Journal of Individual Psychology 20 (May 1964): 55-58.

[3]Robert Bills, E. L. Vance, and O. S. McClean, "An Index of Adjustment and Values," Journal of Consulting Psychology 15 (June 1951): 257-261.

Scores were also taken on a battery of achievement and personality tests, including the What-I-Like-To-Do Inventory[1] and an adaptation of the Taylor Manifest Anxiety Scale.[2] Girls showed a significantly higher ($p<.01$) self-concept than boys. Correlations for intelligence and achievement were significant for boys (r=.211-.525). Self-concept was significantly related to interests for fourth grade girls (r=.305-.44). Neither anxiety, intelligence, interests, or achievement was significantly related to self-concept for sixth grade girls, possibly pointing to a weakness of the instrument. The correlations between self-concept and manifest anxiety for fourth grade boys were significant at the .01 level and for fourth grade girls at the .05 level. Bledsoe attempted to explain the findings by suggesting that the elementary school world is one more appropriate to the cultural expectations of girls, stressing neatness, conformity, and docility, than to the cultural expectations of boys. The same factor may account for girls maturing earlier, encouraging them to rate themselves higher than

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[1]M. R. Bonsall, C. E. Myers, and L. P. Thorpe, What-I-Like-To-Do Inventory: An Inventory of Children's Interests (Chicago: Science Research Associates, 1954).

[2]Janet A. Taylor, "A Personality Scale of Manifest Anxiety," Journal of Abnormal Social Psychology 48 (April 1953): 285-290.

they see themselves to meet the competition of modern day society.[1]

Piers and Harris, in response to the growing awareness of the importance of self-concept theory and criticism of the instruments being used, developed "The Way I Feel About Myself Self-Concept Scale," which is occasionally also referred to in the literature as the "Piers-Harris Children's Self-Concept Scale." The purpose of the study was to begin a systematic effort to (1) develop and standardize an instrument to measure self-concept with a wide age range of children and (2) identify the correlates of self-concept in children.[2] The authors believed that a more valid instrument would reflect concerns of children, rather than those imposed by the educational system or other extraneous entities involved. Statements about themselves were collected from elementary school children through college students by Jersild and published in In Search of Self during 1952.[3] The population of 2,893 children gave statements about

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[1]Bledsoe, "Self-Concepts of Children and Their Intelligence, Achievement, Interests, and Anxiety," p. 57.

[2]Piers and Harris, "Age and Other Correlates of Self-Concept in Children," pp. 91-95.

[3]Arthur T. Jersild, In Search of Self (New York: Bureau of Publications, Columbia University, 1952).

what they liked and disliked about themselves. Jersild then categorized the statements into broad categories, determined the percentage of each grade group that expressed positive or negative concern in each category, and wrote the chapters of his book to accurately express the students' feelings and fears about themselves. The purpose stated by the author was to encourage educators to help the growing person from nursery school through college understand and accept himself.[1]

Piers and Harris took 164 of the statements collected by Jersild. Half of the statements were declarative and half were negative statements. A pilot study was done on ninety third, fourth, and fifth grade children. The children circled "yes" if the item was true about them, and "no" if the item was not true about them. Completion of the test administration took thirty to thirty-five minutes, a feasible amount of time for use with elementary school children. In order to retain only those statements that indicated a degree of discrimination, statements answered in one direction by less than 10 percent or more than 90 percent were dropped from the final form. The final form of 100 items was administered to four third

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[1]Ibid., p. 8.

grade, four sixth grade, and four tenth grade classes. All of the statements were classified by judges as reflecting either high or low self-concept. Five of the items' directions were not determined. Sex differences were not noted in the results of the tests. Although third and tenth grade scores were not significantly different from each other, they were both significantly different from the sixth grade scores. A significant correlation of .188 ($p<.05$) was found between the self-concept scores and the achievement scores of third graders. Significant correlations between self-concept and I.Q. ($r=.251$, $p<.01$) and between self-concept and achievement ($r=.322$, $p<.01$) were found for sixth graders.[1]

The Kuder-Richardson Formula 21 was used to determine internal consistency of the instrument. Coefficients ranged from .78-.93. Test-retest reliability coefficients ranged from .71-.72 for the three grades. Validity was established by Piers and Harris on a group of eighty-eight adolescent retarded females living in an institution. Their scores reflected the decreased self-concept hypothesized by the authors. A subsequent factor analysis revealed that the following six factors could

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[1]Piers and Harris, "Age and Other Correlates of Self-Concept in Children," p. 93.

clearly be interpreted: Behavior, General and Academic Status, Physical Appearance and Attributes, Anxiety, Popularity, and Happiness and Satisfaction.[1]

The Piers and Harris instrument has become very popular for use with elementary school children as shown by the numerous studies cited below that have used "The Way I Feel About Myself Self-Concept Scale" in addition to others that relate self-concept to a particular trait or as a means of measuring effect.[2] The Way I Feel About

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[1]Ibid., p. 95.

[2]See L. Millen, "The Relationship Between Self-Concept, Social Desirability, and Anxiety in Children" (M.A. thesis, Pennsylvania State University, University Park, 1966); Sarah W. Wing, "A Study of Children Whose Reported Self-Concept Differs from Classmates' Evaluations of Them" (Ph.D. dissertation, University of Oregon, Eugene, 1966); Mary L. Ashby, "The Effect of Self-Concept on Children's Learning in Religious Education" (Ph.D. dissertation, George Peabody College for Teachers, Nashville, Tennessee, 1968); Miriam J. Hugo, "The Effects of Group Counseling on Self-Concepts and Behavior of Elementary School Children" (Ph.D. dissertation, Ohio State University, Athens, 1969); Donald W. Felker and Susan Bahlke Thomas, "Self-Initiated Verbal Reinforcement and Positive Self-Concept," Child Development 42 (October 1971): 1285-1287; Donald W. Felker and Douglas J. Stanwyck, "General Self-Concept and Specific Self-Evaluations After an Academic Task," Psychological Reports 29 (August 1971): 60-62; Donald Felker, "Prediction of Specific Self-Evaluations from Performance and Personality Measures," Psychological Reports 31 (December 1972): 823-826; Connie P. Callison, "Experimental Induction of Self-Concept," Psychological Reports 35 (December 1974): 1235-1238; Martin Sisenwein, "A Comparison of the Self-Concepts of Negro and White Children in an Integrated School" (Ph.D. dissertation, Columbia University, New York, 1970).

Myself Self-Concept Scale was chosen for the present investigation because its continued use has demonstrated its reliability and validity.

Morse researched the difference in self-concepts of children in different grades.[1] Six hundred pupils were given the Osgood Semantic Differential Self Esteem Inventory.[2] Students in the lower grades showed a higher self-concept than the older students. When asked if they were proud of their school work, 84 percent of the third grade children stated that they were proud of what they were doing, while only 53 percent of the eleventh graders said so. In fact, 93 percent of the lower grades felt that they were doing the best job that they could at school. Only 37 percent of the seniors expressed that feeling. Forty percent of all students stated that they felt upset often in school, and 40 percent indicated also that they often became discouraged in school. The number of statements about being discouraged in school increased as the grade level increased. Morse called for more research on the self-concept because of the indicated

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[1]William C. Morse, "Self-Concept in the School Setting," Childhood Education 41 (December 1964): 195-198.

[2]C. E. Osgood, G. J. Suci, and T. M. Tannenbaum, The Measurement of Meaning (Urbana, Illinois: University of Illinois Press, 1957).

decrease in self-concept with increase in age and grade level.[1]

Coopersmith published The Antecedents of Self-esteem in 1967 summarizing the work that he had done since 1959.[2] He defined self-esteem as:

> . . . the evaluation which an individual makes and customarily maintains with regard to himself: it expresses an attitude of approval or disapproval, and indicates the extent to which the individual believes himself to be capable, significant, successful, and worthy.[3]

His method of measuring the self-esteem of an individual was an original Self-Esteem Inventory, which revealed a .70-.88 reliability using the test-retest method over a five-week and a three-year interval. The fifty item inventory covered four areas of self-attitudes: peers, parents, school, and personal interests. The inventory was given to 1,748 Connecticut school children, of whom 85 were chosen to serve as subjects for the remainder of the study because of differential scores on the inventory. These children were given additional tests consisting of a teachers' behavior rating form, a clinical battery of

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[1]Morse, "Self-Concept in the School Setting," p. 197.

[2]Stanley Coopersmith, The Antecedents of Self-esteem (San Francisco: W. H. Freeman and Company, 1967).

[3]Ibid., pp. 4-5.

an intelligence test and four projective tests, a rating by the test administrator, a series of five experiments to measure behaviors related to self-esteem, and a consideration of the individual's particular situation in relation to the development of self-esteem.

Coopersmith subjected his findings to extensive, in-depth analysis. An initial note was that children in the eight to ten year range have a generalized self-esteem, rather than one specific to a distinct physiological or psychological aspect.[1] His conclusions from the clinical and experimental studies contained two main thrusts. Firstly, self-esteem can be measured in a variety of methods and situations. Secondly, persons with a high self-esteem are happier and more adequately equipped to meet environmental demands than those with a low self-esteem. For persons with low self-esteem, there seem to be indications of continual withdrawal from people and feelings of distress.[2]

Williams and Cole studied the relationships between self-concept and attitude toward school, social status at school, emotional adjustment, mental ability,

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[1]Ibid., p. 6.

[2]Ibid., p. 19.

reading achievement, and mathematical achievement.[1] A discrepancy score was formulated from the subject's perceived and ideal school situations. Subjects were sixty sixth graders from an urban school and twenty sixth graders from rural schools. The children were given the Tennessee Self-Concept Scale[2] to measure self-esteem, an unpublished social esteem scale which allowed for computation of social status from the number of times a subject is chosen by other classmates to do things together, and a battery of personality and achievement tests. A negative correlation was found between the measure of self-esteem and the discrepancy score ($r=-.28$, $p<.02$). Self-esteem was positively correlated with social esteem ($r=.22$, $p<.05$), emotional adjustment ($r=.62$, $p<.001$), mental ability ($r=.31$, $p<.01$), reading achievement ($r=.31$, $p<.01$), and mathematical achievement ($r=.33$, $p<.01$).[3] Williams and Cole concluded that the teacher may enhance the child's self-concept by improving his sociometric

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[1]Robert L. Williams and Surgeon Cole, "Self-Concept and School Adjustment," Personnel and Guidance Journal 46 (January 1968): 478-481.

[2]William H. Fitts, Tennessee Self-Concept Scale: Manual (Nashville, Tennessee: Counselor Recordings and Tests, 1965).

[3]Williams and Cole, "Self-Concept and School Adjustment," p. 479.

status. This task is of particular concern for children with low abilities. The authors stated in regard to the situation of such children:

> It should be the business of the school to identify children with derogatory self-esteem, to determine the factors that have and are contributing to the low self-appraisal, and to embark on a judicious program of amelioration. Few factors are more fundamental to a child's success than his evaluation and acceptance of himself.[1]

Guardo attempted to analyze the concept of self in self-theory literature and to provide some empirical data to support the theory.[2] Guardo contended that the self should be studied from the point of view of the experiencer as a phenomenological feeling or sense of identity. This sense of identity, according to Guardo, is more central to the being as a concept than the self-concept and involves the experience of being and having certain essential human attributes necessary to experiencing the feeling of a unique identity. These characteristics are (1) a sense of singularity or individuality, (2) a sense of humanity or humaness, (3) a sense of sexuality or sexual identity, and (4) a sense of continuity

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[1]Ibid., p. 480.

[2]Carol J. Guardo, "Self-Revisited: The Sense of Self-Identity," Journal of Humanistic Psychology 8 (Fall 1968): 137-142.

or sameness (from the past, in the present, and into the future).[1] To study these attributes, a verbal report from questions was used. The answers should ascertain (1) if the child recognizes or realizes that he is a singular individual, in a physical, sociological, and/or psychological way; (2) if he senses his own humaness and can distinguish himself from the lower animals; (3) if he identifies his sex, distinguishing himself from the opposite sex, and how or why he does so; and (4) if he perceives the present self as continuous with what he has been in the past and will be in the future.

Guardo's study involved 116 kindergarten through third grade children. Each was interviewed for fifteen to twenty minutes. Most of the children answered as expected, revealing a developing sense of identity. The order of most comprehended to least comprehended characteristics by the children was sexuality, humanity, individuality, and continuity. Continuity provided some difficulty for many of the children, especially the idea of the self continuity throughout the past. Girls seemed to mature to a more cogent sense of self-identity about one year earlier than boys. Guardo asserted that her

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[1]Ibid., p. 138.

findings[1] confirmed the following: the sense of self-identity is a developmental phenomenon which gradually unfolds across time; the postulated dimensions of the sense of self-identity are empirically demonstrable, developmental aspects of self; the development evidenced in the child's sense of self-identity is in line with reputable positions in self-theory; and these developments parallel the course of cognitive development charted in Piaget's theory.[2] No statistical evidence was given in this publication.

LaBenne and Greene wrote a book to summarize self-concept theory.[3] Particular attention was given to the problems in trying to measure a person's self-concept. When the self-report distorts or camouflages the real beliefs and feelings the person holds about self, then the self-report is not an accurate measure of the self-concept. Tests can facilitate investigative study only to the extent that the subject is willing to report his

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[1]Ibid., p. 142.

[2]J. Piaget, Psychology of Intelligence (Paterson, New Jersey: Littlefield, Adams, and Co., 1966).

[3]Wallace D. LaBenne and Bert I. Greene, Educational Implications of Self-Concept Theory (Pacific Palisades, California: Goodyear Publishing Co., 1969).

real feelings and beliefs about himself.[1] In further discussion of the problems with measuring self-concept, LaBenne and Greene noted that self-concept instruments do not all measure the same variable and that little work has been done to specify what is being measured. LaBenne and Greene added that researchers have often used instruments purported to measure self-concept without establishing either the reliability or validity of the instrument.[2] Their comments and conclusions were markedly similar to those of Wylie, discussed earlier in this section.

In 1970, Briggs published a practical, easy-to-read book for parents on the importance of building positive self-esteem in rearing mentally healthy, happy children.[3] The author emphasized the outcome of both positive and negative reactions to a child's behavior. An attempt was made to provide in non-technical language success formulas that parents could use to ensure their child a positive self-esteem. In discussing mastery and achievements as components of developing a self-image, Briggs noted the importance of a child's perceived status:

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[1]Ibid., p. 12.

[2]Ibid., pp. 109-119.

[3]Dorothy Corkille Briggs, Your Child's Self-Esteem, The Key to His Life (Garden City, New York: Doubleday and Company, Inc., 1970).

> Every child's body sends him messages about himself. . . . A youngster's rate of growth, energy level, physical size, appearance, strength, intelligence, friendliness, skills, and handicaps are all reacted to. He draws conclusions partly from his observations to himself in comparison with others and partly from others' responses to him. And each reaction adds to or subtracts from his feelings of self-worth.
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> The attitudes of others toward a child's capacities are more important than his possession of a particular trait. The fact of any handicap is not nearly so vital as the reactions toward it of those around him. Attitudes of pity and scorn make a youngster see himself as unfortunate. Then his image of himself in that area becomes crippled.
>
> Every activity a child is involved in gives him further information about himself. In clubs, sports, church and social groups, at school, at work, he continually adds reflections to his growing collection of self-descriptions.[1]

Sears studied the effects of child rearing practices and gender role on self-concept.[2] He gave a modified version of the Sears Self-Concept Inventory[3] to eighty-four girls and seventy-five boys in the sixth grade. The children were also given the Fe scale to measure femininity

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[1]Ibid., pp. 16-17.

[2]Robert R. Sears, "Relation of Early Socialization Experiences to Self-Concepts and Gender Role in Middle Childhood," Childhood Development 41 (June 1970): 267-289.

[3]Pauline S. Sears, The Effect of Classroom Conditions on the Strength of Achievement Motive and Work Output of Elementary School Children (Washington, D. C.: U. S. Office of Education Cooperative Research Project No. 873, 1963).

from the California Psychological Inventory.[1] The mothers of all the children had been interviewed seven years earlier when the children were in kindergarten.[2] For both sexes, a high self-concept was significantly related to (1) high reading achievement and mathematical achievement scores taken three years earlier ($p<.05$), (2) small family size--for boys $r=-.20$ and for girls $r=-.28$, and (3) early ordinal position in the family--measured in difference between only and oldest child and middle and youngest child--for boys $p<.10$ and for girls $p<.01$. In regard to child rearing practices, high self-concept was significantly related to high maternal and paternal warmth--for boys, mother warmth, $r=.23$ and father warmth, $r=.27$, and for girls, mother warmth, $r=.31$ and father warmth, $r=.24$. For boys only, high self-concept was associated with low father dominance in husband-wife relations ($r=-.33$). The measure of femininity was

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[1]H. G. Gough, Manual for the California Psychological Inventory (Palo Alto, California: Consulting Psychologists Press, 1957).

[2]R. R. Sears, E. E. Maccoby, and H. Levin, Patterns of Child Rearing (Evanston, Illinois: Row, Peterson Company, 1967).

inversely related to negative self-evaluations for both boys (r=-.36) and for girls (r=-.35).[1]

Bolea, Felker, and Barnes developed a self-concept instrument that does not depend on the child's reading ability.[2] A set of fifty cartoon-like picture cards were selected to reflect categories of self-concept theorized by Jersild.[3] A panel of eight psychologists and human development specialists ranked the items on a continuum from positive to negative self-concept. The mean rank of the judges was assigned each card. The pupil was to sort the cards into one of three stacks: like me, sometimes like me, or not like me at all. Values of three, two, or one, respectively, were given the cards in each stack.

Split half reliability with 1,813 subjects was .85. The two hypotheses about validity were accepted by the authors: (1) there is a significant relationship between scores on the Pictorial Self-Concept Scale and scores on the Piers-Harris instrument (r=.42, p<.01); and

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[1]Sears, "Relation of Early Socialization Experiences to Self-Concepts and Gender Role in Middle Childhood," pp. 286-288.

[2]Angelo S. Bolea, Donald W. Felker, and Margaret D. Barnes, "A Pictorial Self-Concept Scale for Children in K-4." Journal of Educational Measurement 8 (Fall 1971): 223-224.

[3]Jersild, In Search of Self.

(2) children having been identified as having positive or negative self-concepts by principals and teachers have differentiated scores on the Pictorial Self-Concept Scale. For girls the difference between those with high and low self-concepts was twenty-six, $p<.01$, and for boys the difference was sixteen, $p<.05$.[1] Additional work verifies these findings.[2]

In 1971, Guardo and Bohan published a report on the work reviewed earlier in this section as discussed by Guardo.[3] The researchers used interview questions to assess the four postulated dimensions: humanity, sexuality, individuality, and continuity. They interviewed 116 children, ages six to nine years. The responses of the younger children showed clear qualitative differences from the responses of the older children, indicating the

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[1]Bolea, Felker, and Barnes, "A Pictorial Self-Concept Scale for Children in K-4," pp. 223-224.

[2]See P. A. Storm, "The Relationship Between Self-Concept and Race Image in Negro First Graders" (M.A. thesis, University of Maryland, College Park, 1968); K. C. Sun, "A Study of the Drawings of Children as an Indicator of Their Self-Concept" (M.A. thesis, University of Maryland, College Park, 1968); and K. Vols, "An Experimental Study of the Effect of Certain Classroom Techniques on the Self-Concepts of Young Children" (M.A. thesis, University of Maryland, College Park, 1968).

[3]Carol J. Guardo and Janis Beebe Bohan, "Development of a Sense of Identity in Children," Child Development 42 (December 1971): 1909-1921.

developing level of self-identity. The authors added that their findings parallel the developments proposed by Piaget. Significant differences at the .001 level were found between age groups for both sexes on responses concerning humanity, individuality, continuity from the past, and continuity into the remote future. For girls only, significant differences at the .001 level were found on sexuality. At the .01 level were the males' awareness of sexuality and the girls' awareness of continuity into the near future.[1] Guardo and Bohan concluded that the self may be conceived of as that "experience of which the self-concept is a concept. It refers to an immediate intra-organismic experience whereby the individual is aware of his own being and functioning."[2]

In an attempt to add information to the previously mentioned studies on the use of self-report as an indicator of self-concept, Micheal, Plass, and Lee investigated the relationships between the self-reports and teachers' observed reports of thirty sixth grade children.[3] Four major

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[1]Ibid., pp. 1917-1919.

[2]Ibid., p. 1920.

[3]Joan J. Micheal, Alexia Plass, and Young B. Lee, "A Comparison of the Self-Report and the Observed Report in the Measurement of the Self-Concept: Implications for Construct Validity," Educational and Psychological Measurement 33 (Summer 1973): 433-439.

areas were given consideration: mental health, personal self, academic self, and social self. A forty-eight item adaptation of Coopersmith's Self-Esteem Inventory, using twelve items for each of the four categories, was given to the students and two teachers who were trained in observation. There were no significant differences amongst the means of the self-reports and observed reports relative to the three constructs studied, mental health, personal self, and academic self. There was a significant difference ($p<.05$) between the means of the self-report and observed report for the social self. For individual items in each area, significant differences at the .05 level were found between nine of the forty-eight items: five in the area of social self, two in mental health, and two in personal self.[1] This work further supports the suggestion of using several types of evaluations to measure self-concept.

Self-Concept and Physical Fitness

The study of the relationship between physiological and psychological functioning of an individual is not simply a historical one, but a current emphasis in the investigation of mental health. The following review

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[1]Ibid., pp. 437-438.

examines the relationship between self-concept and physical fitness, including aspects related to fitness, such as physical activity programs, motor ability, and disability. There is, however, a paucity of empirical research supporting the relationship between disability and self-concept. In the present study, it is hypothesized that asthma is a disability that affects self-concept, and it is hoped that the current study will add to literature in this area.

Zakrajsek studied the relationship between self-concept, motor ability, and peer evaluation of motor ability of junior high school girls.[1] One hundred and eighty-four seventh and eighth grade girls were administered the Scott's Test of Motor Ability[2] and the Tennessee Self-Concept Scale. Each student was also asked to choose the five students from their class that they would most want and the five that they would least want on a team for competition. From the data, Zakrajsek made several conclusions: there exists a significant relationship (r=.23)

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[1]Dorothy Berlin Zakrajsek, "The Relationship Between Self-Concept, Motor Ability, and Peer Evaluation for Junior High School Girls" (Ph.D. dissertation, Michigan State University, 1966).

[2]Gladys M. Scott and Ester French, Evaluation in Physical Education (St. Louis: The C. V. Mosby Company, 1950).

at the .01 level between self-concept and motor ability, students with a high self-concept score higher in motor performance than students with a low or medium self-concept, students with a low self-concept score lower in motor performance than students with a high or medium self-concept, students who score higher in motor performance have a higher positive attitude toward themselves, students who score lower in motor performance have a lower and more negative attitude toward themselves, students rated high for physical skills by their peers have a higher self-concept and have higher motor abilities, students rated low for physical skills by their peers have a lower self-concept and have lower motor abilities. Zakrajsek added,

> Physical activity when well planned to meet individual needs can and does contribute to the enhancement of the self. Good physical education programs offer one opportunity for students to meet success, build their own self confidence, stabilize emotional and mental health, and formulate positive attitudes toward themselves. It is readily agreed that the assessment of the individual by her peer group does influence her own judgment of herself.[1]

Clifford and Clifford studied the effects of survival training on self-concepts of thirty-six boys,

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[1]Zakrajsek, "The Relationship Between Self-Concept, Motor Ability, and Peer Evaluation for Junior High School Girls," p. 41.

ages sixteen to twenty-one.[1] The boys were students for one month in the now popular Outward Bound School. They participated daily in rigorous physical activity designed to increase reliance on self and teach survival training. Before and after the program the boys were given: (1) a seven point rating scale of fifteen statements about the self adapted from Dickey's 1958[2] and 1961[3] work; the student rated the statement on "how it applies to me" with scores ranging from 15 (indicating positive self-acceptance) to 105 (indicating negative self-acceptance); (2) a seven point self-description scale from Dickey's 1958 work of thirty-four adjectives and phrases; scores range from 34 (indicating positive self-description) to 238 (indicating negative self-description); (3) The Word

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[1]Edward Clifford and Miriam Clifford, "Self-Concepts Before and After Survival Training," British Journal of Social and Clinical Psychology 6 (December 1967): 241-248.

[2]Brenda A. Dickey, "Role Conflict and Feelings of Adequacy in Homosexual Males" (M.A. thesis, University of Colorado, Boulder, 1958).

[3]Brenda A. Dickey, "Attitudes Toward Sex Roles and Feelings of Adequacy in Homosexual Males," Journal of Consulting Psychology 25 (April 1961): 116-122.

Meaning Test,[1] based on the work of Osgood;[2] and (4) an ideal description scale on which the subjects were asked to rate the thirty-four previous adjectives as they would like for them to be. Counselors who spent the entire month with the boys also rated each boy on the thirty-four adjectives.

Clifford and Clifford found significant changes at the .01 level toward a greater degree of positive self-rating and self-description after the one month program. Examining the difference between those boys who rated themselves lower to begin with and those who rated themselves high, the low self-concept boys made the bulk of the difference between initial and final self-ratings and self-description scores. No significant change was found in the ideal self-rating scores. Those boys who initially rated themselves high were rated significantly higher ($p<.01$) by the counselors.[3]

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[1]Edward Clifford, "Connotative Meanings of Self- and Asthma Related Concepts for Subgroups of Asthmatic Children," Journal of Psychosomatic Research 8 (March 1965): 467-475.

[2]Osgood et al., The Meaning of Measurement.

[3]Clifford and Clifford, "Self-Concepts Before and After Survival Training," pp. 245-247.

Hellison studied the effects of a physical conditioning program on self-attitudes.[1] He began by postulating that the self was another object toward which one can have attitudes. Ninety-seven male college students were divided into three groups, forty-nine into two experimental groups and forty-eight into a control group. One experimental group met four times per week for eight weeks. The other experimental group met two times per week for eight weeks, as did the control group. The control group was a beginning volleyball class. The two experimental groups participated in the following three activities: (1) extensive interval training designed to improve aerobic capacity, (2) circuit training to improve muscular endurance and cardiovascular endurance, and (3) some heavy resistance work to improve muscular strength. The subjects were all given the following tests: twelve minute walk-run for distance, dominant hand grip strength, maximum number of pull-ups, maximum number of sit-ups, a physical fitness attitude scale, a self attitude scale, and a body attitude scale. Significant differences were found between the four times

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[1]Donald R. Hellison, "The Effect of Physical Conditioning on Affective Attitudes Toward the Self, the Body, and Physical Fitness" (Ph.D. dissertation, Ohio State University, Columbus, 1969).

per week experimental group and the control group on grip strength ($p<.01$) and on body attitudes ($p<.05$). Significant differences ($p<.01$) were noted for all three groups on their pretest and posttests scores on self attitudes. There were no differences noted, however, between the scores on the self attitudes of any two groups.[1]

Lewis attempted, in 1971, to determine if there were differences in the manner in which disabled and non-disabled persons viewed self-concept and body image.[2] Eleventh and twelfth grade students served in one of five groups. The subjects were divided into two non-disabled groups, one socially disadvantaged group, and two visually impaired groups. The 319 students were all given a body image scale and a self-concept adjective checklist. Lewis hypothesized that the non-disabled group would show a higher self-concept and body image satisfaction score than the other three groups. A correlated hypothesis was that the disabled group would attach more importance to the body image and self-concept than the non-disabled groups. Although her statistics did show trends, Lewis was unable

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[1]Ibid., p. 58.

[2]Evelyn Gary Lewis, "The Differences Among Normal, Social Disadvantaged, and Physically Disadvantaged Groups in Body Image and Self-Concept" (Ph.D. dissertation, University of Connecticut, Storrs, 1971).

to confirm either of the hypotheses with significant data.

Koocher placed sixty-five boys at a YMCA summer camp into three groups: those who learned to swim during the camp, those who tried but failed the swimming test, and those who already knew how to swim when they came to camp.[1] The boys, ages seven to fifteen, were given a modified version of the Bills Index of Adjustment and Values. For the boys who learned to swim, significant difference (.05 level) between pretest and posttest scores occurred on the discrepancy between ideal self and the perceived self. The scores of the other two groups did not change. Koocher concluded that gaining a competence in the physical area (such as swimming) resulted in a possibly temporary, but significant enhancement of self-concept.

Felker and Kay studied seventy-seven seventh grade and seventy-six eighth grade boys on their self-concept, sports interests, sports participation, and body type.[2]

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[1]Gerald P. Koocher, "Swimming, Competence, and Personality Change," Journal of Personality and Social Psychology 18 (June 1971): 275-278.

[2]Donald W. Felker and Richard S. Kay, "Self-Concept, Sports Interests, Sports Participation, and Body Type of Seventh and Eighth Grade Boys," The Journal of Psychology 78 (July 1971): 223-228.

The boys were divided into either the heavy, balanced, or linear body type group by the use of a Ponderal Index (P.I.=height in inches divided by the cube root of weight in pounds). The authors measured the self interest and father's interest in sports with differently worded forms of the same instrument. The instrument had twenty items, four each in sports viewing, allegiance to a team or teams, reminiscence of own sports activities, desire to be active in sports, and activity in sports. Responses were scored with one, two, three, or four associated with not at all, a little, quite a bit, or a lot, respectively. Subjects were divided into high and low interests groups, both for self and father's interest. The subject's physical education instructor rated each subject on high or low level of intramural sports participation. The Piers and Harris Children's Self-Concept Scale was used as a method of obtaining self-concept.

Felker and Kay were able to accept several of their hypotheses. The hypothesis that different body types would score differently on the self-concept measure was accepted for seventh graders ($F_{2,70}=3.13$, $p<.05$). For the eighth grade boys, they were able to accept three of the hypotheses. Boys who perceived their fathers having high sports interests scored higher in self-concept than

did subjects who perceived their fathers as having low interests in sports ($F_{1,70}=5.04$, $p<.05$). Those subjects with high self-interest in sports scored significantly higher on self-concept than did their counterparts with low self-interest in sports ($F_{1,70}=4.80$, $p<.05$). The boys with high instructor's ratings for interschool participation had significantly higher self-concept scores than subjects with low instructor's ratings ($F_{1,66}=4.37$, $p<.05$).[1]

Kay, Felker, and Varoz, in 1972, published a follow-up study which used 406 seventh, eighth, and ninth grade boys in Salt Lake City, Utah, to determine the relationship between sports abilities and interests and self-concept.[2] The Way I Feel About Myself Self-Concept Scale was administered as was the AAHPER Youth Fitness Battery.[3] In the area of interests, correlations were found for the ninth graders between self-concept and

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[1]Ibid., pp. 225-227.

[2]Richard S. Kay, Donald W. Felker, and Roy O. Varoz, "Sports Interests and Abilities as Contributors to Self-Concept in Junior High School Boys," Research Quarterly 43 (May 1972): 208-215.

[3]American Association of Health, Physical Education, and Recreation Youth Fitness Manual (Washington, D. C.: American Association of Health, Physical Education, and Recreation, 1965).

personal interests in sports ($r=.36$, $p<.01$) and for the same two factors in eighth graders a correlation of .24 ($p<.01$) was found. No significant correlations for the relationship between self-concept and fitness variables were found for the ninth graders. Self-concept for eighth grade boys was significantly related to the fifty yard dash times ($r=-.19$, $p<.05$) and the softball throw for distance ($r=.19$, $p<.05$). Correlations for seventh graders were were significant between self-concept and standing broad jump ($r=.25$, $p<.01$), self-concept and pull-ups ($r=.18$, $p<.05$), self-concept and fifty yard dash times ($r=.25$, $p<.01$), and self-concept and the softball throw ($r=.20$, $p<.05$).[1]

Collingwood studied the effects of physical fitness training upon self-concept and body attitudes.[2] Twenty-five matched pairs of male rehabilitation clients, ages eighteen to twenty-six, were split into control and experimental groups. The experimental group spent one hour per day, five days per week, in a program of physical training for four weeks. Pre- and posttests were

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[1]Kay, Felker, and Varoz, "Sports Interests and Abilities as Contributors to Self-Concept in Junior High School Boys," pp. 213-214.

[2]Thomas R. Collingwood, "The Effects of Physical Training Upon Behavior and Self Attitudes," Journal of Clinical Psychology 28 (October 1972): 583-585.

administered to the subjects. The tests consisted of three physical fitness tests, a body attitude scale, a self-concept adjective scale, and the rehabilitation counselor's rating of the client's behavior in the classroom. The experimental group, being the only one to receive the physical fitness tests, gained significantly in all three of the measures. The same group demonstrated a greater significant change on all dimensions on the body attitude scale than other groups. Scores on the self-concept scale similarly leaned favorably toward the experimental group. Ratings by both the rehabilitation and vocational counselors showed much more positive change by the group receiving the physical training program. The staff members of the rehabilitation facility were so favorably impressed that this service is now included as a full time program for the clients.[1]

Gary and Guthrie established a one mile course jogging training program for alcoholics at a state hospital.[2] Twenty patients were divided into two groups. Before and after running the course five days per week

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[1]Ibid., pp. 584-585.

[2]Vivian Gary and Dixon Guthrie, "The Effect of Jogging on Physical Fitness and Self-Concept in Hospitalized Alcoholics," Quarterly Journal of Studies on Alcohol 33 (December 1972): 1073-1078.

for four weeks, the patients were given the Gough Adjective Checklist,[1] Jourard Body-Cathexis and Self Cathexis Scales,[2] and the Schneider Physical Test,[3] which measures cardiovascular fitness. The experimental group experienced significant increases ($p<.05$) in fitness, with a comparison of pre- and posttest means showing change from the poor to the average category. Significant increases in scores ($p<.005$) for self cathexis were noted also in the experimental group. They also showed trends toward better self-concept in all measures except in the aggression and heterosexuality areas. Attendants' reports showed that the experimental group was sleeping with less disturbances than before. The control group remained the same.[4]

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[1]H. G. Gough and A. B. Heilbrun, Jr., The Adjective Checklist Manual (Palo Alto, California: Consulting Psychologists Press, 1965).

[2]P. F. Secord and S. M. Jourard, "The Appraisal of Body-Cathexis; Body-Cathexis and the Self," Journal of Consulting Psychology 17 (October 1953): 343-347.

[3]E. C. Schneider, "A Cardiovascular Rating as a Measure of Physical Fatigue and Efficiency," Journal of the American Medical Association 74 (May 1920): 1507-1510.

[4]Gary and Guthrie, "The Effect of Jogging on Physical Fitness and Self-Concept in Hospitalized Alcoholics," p. 1077.

Phelan gave the Piers and Harris self-concept scale and the AAHPER Youth Fitness Test to twenty-four seventh and eighth grade boys and twenty-seven seventh and eighth grade girls.[1] He found no significant relationship between total self-concept and fitness scores for boys, girls, or boys and girls together. Significant correlations were found between selected factors on the tests. He lists the following as all being significantly related at the .05 level: Physical Appearance and Attributes--flexed arm hang (r=.24), Anxiety--flexed arm hang and pull-ups (r=.29), Total self-concept--sit-ups (r=.27), Intellectual and School Status--sit-ups (r=.31), Physical Appearance and Attributes--sit-ups (r=.26), Happiness and Satisfaction--sit-ups (r=.29), Physical Appearance and Attributes--fifty yard dash (r=.25), Physical Appearance and Attributes--600 yard run walk (r=.35), Popularity--600 yard run walk (r=.29), and Physical Appearance and Attributes--total fitness (r=.33).[2] Phelan recommended that relationships between self-concept and other fitness variables be explored.

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[1]F. Joseph Phelan, "An Investigation into the Relationship Between Self-Concept and Selected Physical Fitness Attributes in Seventh and Eighth Grade Boys and Girls at University School, Laramie, Wyoming" (M.S. thesis, University of Wyoming, Laramie, 1973).

[2]Ibid., pp. 43-45.

In 1974, McGowan, Jarman, and Pederson studied the effects of a cardiovascular fitness program on self-concept and peer approval of seventh grade students.[1] Thirty-seven students with low self-esteem were split into two groups. They were given the Tennessee Self-Concept Scale, the twelve minute run-walk for distance, and a sociogram, whereby the students could circle their five best friends' names. The experimental group participated four days per week for eight weeks in a running training program or in competitive activities. The experimental group significantly increased in cardiovascular fitness ($p<.005$) and in self-concept scores ($p<.05$). There were no changes in peer approval for the experimental group. The control group did not change significantly on any of the tests.[2]

Sonstroem completed a study of 710 males, grades nine through twelve, in 1974.[3] His original concern was the improvement and validation of the Physical Estimation and Attraction Scales, which contained 155 attitude,

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[1]Robert W. McGowan, Boyd O. Jarman, and Darhl M. Pederson, "Effects of a Competitive Endurance Training Program on Self-Concept and Peer Approval," The Journal of Psychology 86 (January 1974): 57-60.

[2]Ibid., p. 59.

[3]Robert J. Sonstroem, "Attitude Testing Examining Certain Psychological Correlates of Physical Activity," Research Quarterly 45 (May 1974): 93-103.

true/false statements. The scale was constructed to yield scores for the estimation of one's physical ability and one's attraction to vigorous physical activity. Estimation items requested the subject to affirm or deny his possession of physical characteristics, physical fitness, and athletic ability or potential. Attraction items asked the subject to affirm or deny personal interest or liking for a specific sports activity or group of activities. Fitness was measured by the Fleishman Basic Fitness Test.[1] Acceptance of self was measured by the Index of Adjustment and Values. Sonstroem found that physical fitness was not significantly related to acceptance of self, but the estimation of one's physical ability was positively and significantly related with acceptance of self. Specifically, the correlation was .30 ($p<.01$).[2]

The preceding studies have documented the somewhat complex relationship between self-concept and physical fitness. There seems to be a general agreement that one's perception of himself in a physical sense greatly influences his generalized self-concept.

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[1]Edwin Fleishman, The Structure and Measurement of Physical Fitness (Englewood Cliffs, New Jersey: Prentice-Hall, Inc., 1964).

[2]Sonstroem, "Attitude Testing Examining Certain Psychological Correlates of Physical Activity," p. 102.

Attitudes Toward Physical Education

Attitudes have three basic components: a belief, an emotion, and a tendency of action.[1] Family, peer groups, and the personality of the individual determine the individual's attitude toward an object. Attitudes serve the individual as a means of satisfying needs, as a self-defensive mechanism to externalize unacceptable impulses, and as a method of self-expression or self-preservation.[2]

Attitudes that are communicated in a verbal or non-verbal (such as writing) manner are referred to as expressed attitudes or opinions. Insight into an individual's attitude toward a certain object may possibly be gained by carefully examining clusters of opinions about that particular object.

Although considerable research has been given to the attitudes of high school and college age students toward physical education, little literature is available

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[1]David Krech, Richard S. Crutchfield, and Norman Livson, Elements of Psychology, 3rd ed. (New York: Alfred A. Knopf, Inc., 1974), p. 757.

[2]Ibid., pp. 762-773.

on younger students. Wear,[1] Edgington,[2] Bassett,[3] Kappes,[4] Neale, Sonstroem, and Metz,[5] and Kenyon[6] have all developed original instruments to measure attitudes of high school and college students. The following review is limited to research focusing upon elementary school children's attitudes toward physical education.

An instrument to measure elementary school children's attitudes toward physical education was developed

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[1]Carlos L. Wear, "Construction of Equivalent Forms of an Attitude Scale," Research Quarterly 25 (March 1955): 113-119.

[2]Charles W. Edgington, "Development of an Attitude Scale to Measure Attitudes of High School Freshman Boys Toward Physical Education," Research Quarterly 39 (October 1968): 505-512.

[3]G. R. Bassett, "The Development of a Scale to Measure Male Attitudes Toward Regular Physical Exercise" (M.A. thesis, Washington State University, 1967).

[4]Eveline Kappes, "Inventory to Determine Attitudes of College Women Toward Physical Education and Student Services of the Physical Education Department," Research Quarterly 25 (December 1954): 429-438.

[5]Daniel C. Neale, Robert J. Sonstroem, and Kenneth F. Metz, "Physical Fitness, Self-esteem, and Attitudes Toward Physical Activity," Research Quarterly 40 (December 1969): 743-747.

[6]Gerald S. Kenyon, "Six Scales for Assessing Attitudes Toward Physical Activity," Research Quarterly 39 (October 1968): 566-574.

at the Texas Woman's University by Toulmin.[1] Paralleling the techniques described by Wear, Toulmin gathered attitude statements about physical education from 331 children. Using an item analysis, the statements were then reduced to fifty items. The final form was administered to 315 fourth, fifth, and sixth grade students from three schools within the Carrollton-Farmers Branch Independent School District in Texas. The children rated the twenty-four positive and twenty-six negative statements using a six point Likert scale, ranging from strongly agree to strongly disagree so that a maximum score was 300. A score of 150 to 300 was considered as expressing a favorable attitude toward physical education. A score lower than 150 indicated that the subject had an unfavorable attitude toward physical education.

Reliability was .91, determined by the odd-even technique and corrected with the Spearman-Brown Prophecy Formula. Validity was established by the method of known groups. Sixty-five students in each group comprised non-athlete and athlete groups with extremely low and high

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[1]Martha Lee Burch Toulmin, "The Development of an Original Instrument to Measure the Expressed Attitudes of Children Toward the Elementary School Program of Physical Education" (M.A. thesis, Texas Woman's University, Denton, Texas, 1973).

physical fitness respectively. An ANOVA was computed which yielded significant differences between groups.[1]

In 1977, Sherrill, with the help of three Denton principals, revised the Toulmin instrument and renamed it the Children's Attitude Inventory Toward Physical Education (CAIPE).[2] This instrument was used in the present investigation.

A children's version of Kenyon's six scales for assessing attitude toward physical activity was published by Simon and Smoll.[3] Simon and Smoll used a semantic differential scale very similar to the one developed by Kenyon. Both purported to measure attitude toward physical activity in six dimensions: as a social experience, for health and fitness, as a thrill but involving some risk, as beauty in human movement, for the release of tension, and as long and hard training. For the children's version, the authors made four major changes from the original scale: (1) the chance subdomain was excluded from the activities listed; (2) the wording was changed to a third

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[1]Ibid., p. 85.

[2]Sherrill and Toulmin, "A Children's Attitude Inventory Toward Physical Education."

[3]Julie A. Simon and Frank L. Smoll, "An Instrument for Assessing Children's Attitudes Toward Physical Activity," Research Quarterly 45 (December 1974): 407-415.

grade reading level so that hopefully all fourth, fifth, and sixth grade children would be able to easily comprehend the meanings; (3) the subdomains were explained in simple, one or two sentence-phrase combinations; and (4) the adjective pairs were examined for reading level appropriateness to ensure maximum subject discrimination. There were eight items on each of the six dimensions. Below a question or issue were two antonym adjectives with a seven point continuum between. The antonyms used were good-bad, of no use-useful, not pleasant-pleasant, bitter-sweet, nice-awful, happy-sad, dirty-clean, and steady-nervous. The original instrument was given to 483 males and 509 females in the fourth, fifth, and sixth grades from five schools in Bellvue, Washington. Six weeks later nineteen of the original forty classes were given the instrument again. The Children's Attitude Toward Physical Activity had a reliability of .80-.89 for the six scales on the test-retest correlations of data from 407 of the students.[1]

Stensaasen recently investigated Norwegian junior high school students' attitudes toward physical education.[2]

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[1]Ibid., pp. 407-414.

[2]Svein Stensaasen, "Pupils Liking for Physical Education as a School Subject," Scandinavian Journal of Educational Research 19 (Autumn 1975): 11-129.

The subjects were 1,321 seventh, eighth, and ninth graders. They were presented a list of attitudinal statements about school subjects and asked to rate each statement on a five point Likert scale. Stensaasen offered as part of his findings: that physical education was one of the best liked subjects, that there were no sex or grade differences in regard to this finding, and that this finding was consistent throughout the fall and spring semesters.

Two years after the Simon and Smoll research, Smoll, Schultz, and Keeney used the Children's Attitudes Toward Physical Activity in an attempt to measure the relationship between attitudes and involvement and participation in physical activities.[1] The CATPA was given to 127 boys and 137 girls in grades four, five, and six in Bellvue, Washington. To measure involvement, a forced choice questionnaire was administered that covered all of the six areas. The fifty yard dash, standing long jump, and softball throw for distance were given to measure motor performance. Strong correlations of .49-.82 were found between attitudes and the primary involvement of the children. No significant relationships were found

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[1]Frank L. Smoll, Robert W. Schultz, and Joan K. Keeney, "Relationships Among Children's Attitudes, Involvement, and Proficiency in Physical Activities," Research Quarterly 47 (December 1976): 797-803.

between the attitudes and the motor performance. Smoll, Schultz, and Keeney believed that children are primarily involved in those activities toward which they have the most positive attitude. Accordingly, physical education instructors should provide the opportunity for involvement, which will result in the promotion and maintenance of positive attitudes.[1]

Asthma, Self-Concepts, and Attitudes Toward Physical Education

Considerable evidence exists, including McGovern and Knight's Allergy and Human Emotions,[2] that asthma affects the cognitive and affective domains as well as the respiratory system. Conversely, emotional stress may bring about an asthma attack.[3] Lukeman noted that,

> While emotional precipitants are important as provoking stimuli in attacks of asthma, it is apparent that the degree of handicap caused to the child and his family by the attacks can lead to psychological disturbances, so that it becomes difficult to separate cause from effect.[4]

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[1]Ibid., pp. 800-802.

[2]John P. McGovern and James A. Knight, Allergy and Human Emotions (Springfield, Illinois: C. C. Thomas Publisher, 1967).

[3]Ibid., p. 3.

[4]Diane Lukeman, "Conditioning Methods of Treating Childhood Asthma," Journal of Child Psychology and Psychiatry 16 (April 1975): 165-168.

Wright, in writing of physical disability, stated that the power of any single attribute to influence self-esteem will be greater: (1) the closer the connection between it and the self-core (how central the attribute is to what is called the "essence of the self," or the "essential me") and (2) the higher status value it possesses (the relevance of an attribute for the evaluation of personal worth or self-esteem).[1]

Wright also discussed the expectations of a disabled person. She stated that the expectations a person brings into a situation "not only put the spotlight on what he will see but also, as a function of their strength, delimit the degree of incompatibility with objective fact that can be tolerated."[2] The disabled person comes to expect certain attitudes and feelings about himself, based upon his self-concept. These expectations influence greatly the perceived meanings of remarks, gestures, or facial expressions by others in the environment, according to Wright.[3]

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[1]Beatrice A. Wright, Physical Disability--A Psychological Approach (Evanston, Illinois: Harper and Row, 1960), pp. 138-161.

[2]Ibid., p. 170.

[3]Ibid., p. 162.

In 1960, McElhenney and Peterson began a study in Austin, Texas, with two predetermined goals in mind.[1] The first was to determine if a physical fitness program, especially designed for asthmatic children, would decrease the physical and emotional handicaps apparent in asthmatic children. The other goal was to obtain documentation of the asthmatic child's response to more strenuous physical activities than had been previously experienced. McElhenney and Peterson hypothesized that the lack of basic body skills lessens confidence and leads to feelings of inferiority. A four month physical fitness program was designed to include the following: breathing exercises; activities to develop strength, endurance, and skill; and opportunities to practice basic body skills. Twenty asthmatic males, ages eight to twelve years, were the subjects.

Pre- and posttests were given, using a wet spirometer, the Children's Form of the Taylor Manifest Anxiety Scale, and the Children's Personality Inventory.[2] Lung capacity increased by 18 percent. There was,

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[1]Thomas R. McElhenney and Kay H. Peterson, "Physical Fitness for Asthmatic Boys," Journal of the American Medical Association 185 (July 1963): 142-143.

[2]Consulting Psychologists Press, Inc., 270 Town and Country Village, Palo Alto, California, 94306.

however, no significant change using a t-ratio on the two tests of psychological traits. McElhenney and Peterson reported that there was a 30 percent reduction in the number and severity of asthma attacks and that the subjects all became doers, instead of watchers, in the area of physical activity.

Purcell's review of psychosomatic studies contained three major criticisms of previous research.[1] Researchers have often proposed elaborate psychogenic theories of asthma and neglected areas that exist of well-documented, established empiric findings. Secondly, asthma has commonly been treated as a homogenous entity, although asthmatic persons are outstanding in their differential responsiveness to treatment, reduction of symptoms, onset of symptoms, and the variety of stimuli in the environment. Finally, the methodology used in the study of asthmatics has been less than perfect.[2]

In a follow-up of their 1960 study, Peterson and McElhenney involved twenty asthmatic boys in an eight

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[1]Kenneth Purcell, "Critical Appraisal of Psychosomatic Studies of Asthma," New York State Journal of Medicine 65 (August 1965): 2103-2109.

[2]Ibid., p. 2104.

month program of physical activity.[1] This program was designed to increase physical fitness; to decrease frequency, severity, and duration of asthma attacks; to lessen the emotional stress felt by asthmatic children because of their lesser ability to participate; to enhance peer acceptance through improvement of physical skills; and to provide an opportunity for the development of self-reliability in an atmosphere divorced from parental over-protection.

Eighteen of the boys, ages eight to thirteen years, completed the program, which was held for one hour per day, three days per week. They were given a battery of tests before and after the fitness program. On the physical fitness items of fifty yard dash, standing broad jump, sit-ups, softball throw, agility run, pull-ups, grip strength, and rope climb, the mean averages for the post-tests were all significantly increased at the .01 level over those of the pretests. To measure the vital capacity of the lungs, the wet spirometer and the McKessor Vitalor were used. Both yielded posttest data significant at the .01 level. School attendance for the group of subjects

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[1]Kay D. Peterson and Thomas R. McElhenney, "Effects of a Physical Fitness Program on Asthmatic Boys," Pediatrics 35 (February 1965): 295-299.

was compared to attendance the previous school year. Total days missed because of asthma were less than one-half after the program.

The parents were asked to complete a questionnaire which gave the following results. Sixteen of the eighteen mothers said that there was a marked reduction in the number and severity of asthma attacks and a definite increase in exercise tolerance. Fifteen of the mothers said that emotional upsets had decreased, while one mother said that they had increased. Seven of the mothers stated that overall improvement was excellent and nine classified it as good. The teachers' evaluations yielded the following. The subjects improved in degree of acceptance by other children in the class, participated more fully in playground activities, and demonstrated increased emotional stability.

The subjects were also given the Children's Personality Questionnaire[1] Form A as a pretest and Form B as a posttest. Two findings were noted, although no statistical information was included in the publication: a consistent increase in intelligence and consistent

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[1]Consulting Psychologists Press, Inc., 270 Town and Country Village, Palo Alto, California, 94306.

improvement in sociability, self-assertion, and group activities.

The question of the relationship between personality type and specific psychosomatic disorders was studied by Herbert.[1] The investigation included thirty-two asthmatic children, thirty-two stammerers, and thirty-two children without serious behavior problems and without chronic physical illness. The children were given the Picture-Frustration Test,[2] the Thematic Apperception Test,[3] the Family Attitude Test,[4] a story completion test, a questionnaire designed to elicit the emotional experiences regarded as important and memorable by the child, the Goodenough Draw-a-man Test,[5] and an interview. A case history was completed also on each child.

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[1]M. Herbert, "Personality Factors and Bronchial Asthma: A Study of South African Indian Children," Journal of Psychosomatic Research 8 (March 1965): 353-364.

[2]S. Rosenzweig, E. E. Fleming, and L. Rosenzweig, "The Children's Form of the Rosenzweig Picture-Frustration Study," Journal of Psychology 26 (Summer 1948): 141-191.

[3]L. Bellak, The T.A.T. and C.A.T. in Clinical Use (New York: Grune and Stratton, 1954).

[4]L. Jackson, "Emotional Attitudes Toward the Family of Normal, Neurotic, and Delinquent Children," British Journal of Psychology 41 (September 1950): 35.

[5]F. L. Goodenough, Measurement of Intelligence by Drawings (Chicago: World Book, 1954).

On the picture-frustration test, the asthmatic group produced significantly more ($p<.05$) extrapunitive responses than the stammerers. There were no significant differences between the asthmatic group and control group on the story tests. The asthmatic children produced more ($p<.01$) hostility responses than the stammerers on the story completion tests. No significant differences were noted between the three groups on the emotional response questionnaire, intelligence tests, or the interview ratings. Analysis of the case histories data did not provide a clear picture of a disorder-specific set of personality traits. It is worth noting that the case histories showed an 80 percent incidence of maternal overprotection for the asthmatic group as compared with 24 percent of the control group and that 52 percent of the asthmatic children could be termed maladjusted or neurotic. Herbert suggested that attempts to correlate personality profiles with specific disorders are unlikely to prove fruitful, although he admitted weaknesses in the literature concerning knowledge about trait analysis and the "molecular" theory of personality type.[1]

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[1]Herbert, "Personality Factors and Bronchial Asthma: A Study of South African Indian Children," p. 362.

Clifford divided fifty asthmatic children at the Children's Asthma Research Institute and Hospital in Denver, Colorado, into two groups: Symptom losers (SL), twenty-five children who had lost their symptoms after being placed in the hospital; and Symptom maintainers (SM), twenty-five children who had maintained their symptoms.[1] Using a semantic differential format, Clifford obtained ratings of asthma-related concepts from the two groups. Nine adjective pairs, separated by a seven point scale, resulted in three factor scores: evaluative, potency, and activity.

Symptom losers evaluated the concepts of me, home, mother, father, hospital, and lung significantly higher ($p<.05$) than the Symptom maintainers. The SM group rated lung more potent ($p<.05$) than did the SL group. For the activity factor, the SL group rated lung, psychologist, doctor, home, mother, and father as significantly ($p<.05$) more active than the SM group. The SL group showed a greater semantic difference ($p<.05$) between the concept of asthma and other concepts. The SM's indicated greater semantic similarity between the following pairs:

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[1]Clifford, "Connotative Meanings of Self- and Asthma Related Concepts for Two Subgroups of Asthmatic Children," pp. 467-475.

asthma-me, asthma-Tedral, asthma-psychologists, asthma-nurse, and asthma-mother. Clifford stated that the assigning of higher ratings for evaluative and activity areas by the symptom losers indicated greater acceptance of self.[1]

Millman et al. reported their attempt to evaluate the effectiveness of a controlled exercise program on asthmatic children in areas of respiratory function, cardiovascular efficiency, physical performance, and personality.[2] Seven boys and two girls, ages seven to twelve years, met three times per week at San Diego State College gymnasium for forty-five minute sessions. Warm up exercises, cardiovascular conditioning, and vigorous exercises were used.

Respiratory function was measured by a 13.5 Collins respirometer. Maximum breathing capacity showed a 55-89 percent increase. Forced expiratory volume for one second remained unchanged. There was also a 7 percent increase in vital capacity. Cardiovascular efficiency was measured by the Kasch Pulse Recovery Step Test. The group

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[1]Ibid., p. 474.

[2]Milton Millman, William C. Grundon, Fred Kasch, Buddy Wilkerson, and Jay Headley, "Controlled Exercise in Asthmatic Children," Annals of Allergy 23 (May 1965): 220-225.

decreased on their mean resting pulse rate by seven beats per minute. Physical performance was evaluated by several measures. There was no improvement in the balance test, only slight improvement in the vertical jump, a decrease in trunk flexibility, and an increase in trunk extension and shoulder extension. No tests of significance were reported.

Psychological assessment was provided by the California Test of Personality[1] to see if there was any change in self-concept. No trend was noted; therefore, the tests were considered inconclusive. The teachers' evaluations pointed out that the children had improved in several areas--mainly self composure, but also in getting along with others, demonstrating enthusiasm, demonstrating the capability to be a follower, and feeling accepted by the others.

In trying to find a correlation between certain somatic diseases and certain patterns of behavior, van Dijl researched the differences between asthmatic patients and myocardial infarction (MI) patients on a

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[1]California Test Bureau, 5916 Hollywood Boulevard, Los Angeles, California, 90027.

semantic differential.[1] The theme used was myself, as I am, and there were thirty-eight semantic differential adjective pairs with a scale of one to seven between. Twenty-five asthmatic males, ages thirty-four to sixty-four, and twenty-five male MI patients, ages forty-four to sixty-five, were studied.

The asthmatic patients rated themselves significantly lower than the MI patients rated themselves on nine of the adjective pairs. Following are the pairs which showed a significant difference between asthmatic and MI patients: cheerful-gloomy, fond of working-not fond of working, contented-discontented, indulgent-inexorable, dutiful-easy going, masculine-feminine, good fellow-stern, yielding-rebellious, and careful-neglectful. A replication of the study was done with twenty asthmatic males, ages thirty-one to sixty-five, and twenty MI patients, ages fifty to seventy-two. The same nine adjective pairs were rated similar to the first study, although only two pairs (good fellow-stern and careful-neglectful) reached the .05 level of significance.

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[1]H. van Dijl, "Test Behavior Difference Between Asthmatics and Myocardial Infarction Patients on a Self Evaluation Test," Journal of Psychosomatic Research 11 (June 1967): 51-58.

van Dijl recommended further research into self evaluations of personality traits in victims of specific disorders.[1]

Barkan and McGovern warned grade school teachers not to handicap an asthmatic child when trying to be helpful, noting that secondary emotional problems may arise if the child feels different from his peers.[2] Protective mothers often impose limitations that convince a child that he is not like other children. Barkan and McGovern stated that all the annoying symptoms of asthma may seriously affect the child's body image and recommended that asthmatic children be allowed to participate in all physical education activities possible. When this is not possible because of the child's condition, special therapeutic exercise programs should be instituted so that the children will not be completely excluded. Caution was given for activities that might trigger respiratory infections in a child who has recently been in a chronic asthmatic state.[3]

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[1]Ibid., p. 57.

[2]Gilbert D. Barkan and John P. McGovern, "What the Classroom Teacher Can Do for the Asthmatic Child," NEA Journal 56 (November 1967): 40-41.

[3]Ibid., p. 41.

Clifford hypothesized that two aspects of experiencing symptoms, age of first occurrence and the effects of the symptoms of others, are of great importance in determining how a person with a chronic disease structures his world.[1] Two groups were involved in this study: fifty asthmatic children, ages ten to sixteen, and thirty-nine cleft lip and cleft palate children. Of the second group, there were twenty-nine children with both a cleft lip and a cleft palate, ten with cleft palate only, and three with cleft lip only. Their ages ranged from eight to sixteen years. The effect of symptoms on cognitive structures was measured by a semantic differential instrument, with different wording appropriate for the two disability groups. A self-rating form to measure the impact of the symptom contained ten sentence completion items in a multiple choice format. Sentences began with, "If I didn't have (asthma, cleft lip) . . ." Another self-rating form given measured the child's perception of his parents' reaction to his birth. There were sixteen items each for the mother and father, followed by four

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[1]Edward Clifford, "The Impact of Symptom on the Child: Comparative Studies of Clinical Populations," The Journal of School Health 38 (June 1968): 342-349.

alternatives: very true, maybe true, maybe untrue, and very untrue.

On the semantic differential, cleft palate and cleft lip children rated cleft palate and cleft lip differently from and less severe than other symptom concepts, such as asthma, headache, cripple, amputation, and cancer. Those asthmatic children classified as Symptom losers (N=25) rated asthma similar to the way the non-asthmatic population did, rather than like the asthmatic children classified as Symptom maintainers (N=25).

Both groups, on the self-rating for change, perceived a change for the better with the loss of symptoms. Comparatively, significantly more ($p<.01$) palate patients than asthmatic patients saw the loss of symptoms as having a negative effect. Noteworthy is the fact that over one-half of the responses by both groups perceived no change with the loss of symptoms.

On the children's perceptions of parents' acceptance at birth, the asthmatic group had a significantly higher ($p<.001$) perceived parental acceptance by mother and father than the cleft lip and palate group. The asthmatic children perceived the mother as slightly more accepting than the father.[1]

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[1]Ibid., pp. 345-348.

Franklin studied the relationship between participation in a physical conditioning program by asthmatic children and changes in pulmonary efficiency and aerobic capacity.[1] The experimental and control groups each consisted of thirteen asthmatic children, ages six through fifteen years. The children were tested before and after the conditioning program with a Collins 13.5 liter Respirometer on Maximal Breathing Capacity (MBC)[2] and Forced Expiratory Volume for One Second (FEV_1). A Monark bicycle ergometer,[3] Crystalab metronome,[4] a Medetron electronic stethoscope, stopwatch, and record player were used to measure the Submaximal Working Capacity-170 (SWC_{170}).[5] The experimental group participated in the physical conditioning program five days per week for four weeks.

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[1]Janice Carrie Franklin, "An Experimental Study of Physical Conditioning for Asthmatic Children" (M.A. thesis, Texas Woman's University, 1971).

[2]E. A. Gaensler and George W. Wright, "Evaluation of Respiratory Impairment," Archives of Environmental Health 13 (February 1966): 155.

[3]Quinton Instruments, 3051 44th Avenue, West, Seattle, Washington, 98199.

[4]Crystalab Research Laboratories, Inc., 29 Allyn Street, Hartford, Connecticut, 06103.

[5]Eugene V. Doroschuk, "A Short Test of Submaximal Working Capacity (SWC_{170})," Journal of the Canadian Association for Health, Physical Education, and Recreation 32 (December-January 1965-1966): 34.

The two groups were equated with respect to the pretests for FEV_1, MBC, and SWC_{170}. No significant differences were noted for the two groups on posttest values for FEV_1, MBC, and SWC_{170}. Significant differences ($p<.05$) were found between the pretest and posttests scores for the experimental group on SWC_{170}. Franklin recommended that similar experimental studies be undertaken: (1) having a delayed posttest to determine the lasting effects of such a program, (2) using a longer and/or more physically demanding program, (3) using swimming as the independent variable, (4) having asthmatic adults as subjects, or (5) studying the relationship between participation in a physical conditioning program and changes in psychological traits of asthmatic persons.[1]

In response to the above findings, Claverie developed a swimming program to test pulmonary efficiency and working capacity changes in asthmatic and non-asthmatic children.[2] The specific objectives of the program were: (1) to increase breathing capacity, (2) to teach controlled breathing before and after an activity, (3) to teach basic

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[1]Franklin, "An Experimental Study of Physical Conditioning for Asthmatic Children," pp. 96-97.

[2]Claverie, "Changes in Pulmonary Efficiency and Working Capacity of Asthmatic and Non-Asthmatic Children in a Swimming Program."

breathing exercises for maximum use of respiratory muscles, (4) to teach the use of the breathing exercises to stop an asthmatic attack, and (5) to develop physical endurance so that each child will be better equipped to participate in regular activities. The class met one hour per day, five days per week for four weeks. Pulmonary efficiency was measured by Forced Expiratory Volume for One Second and Maximal Breathing Capacity. Working capacity was measured by Submaximal Working Capacity (SWC_{170}). Nine boys and five girls were in the asthmatic experimental group, and the same number of boys and girls were in the non-asthmatic experimental group. The two control groups consisted of eight boys and six girls in the asthmatic group and seven boys and six girls in the non-asthmatic group. Mean ages for the groups ranged from 7.16 to 9.01 years.

Prior to the swimming program, the four groups were equated with respect to FEV_1, MBC, SWC_{170}, height, weight, swimming ability, and asthmatic status. No significant differences were found on the posttests between the four groups on FEV_1, MBC, or SWC_{170}. Claverie noted that several of the children showed more self confidence, less fear of water, and an improvement in the ability to get along with others. Parents reported that the use of the breathing exercises was of value in lessening the

frequency and severity of asthmatic attacks. In addition to other similar studies, Claverie also recommended a study of the relationship between participation in a swimming program and changes in psychological traits of asthmatic and non-asthmatic children.[1]

Hindi-Alexander related that asthmatic children are often mocked in both school and neighborhood situations which call for physical exertion when it precipitates attacks of wheezing, coughing, etc.[2] The child is seldom able to run as fast or as far as his peers. Certainly the asthmatic child's perceptions of his peers' evaluations must have a damaging effect on his development of positive attitudes toward physical activity.[3]

Bharani and Hyde surveyed 74 pediatricians, 30 pediatric allergists, and 178 teachers, teacher/nurses, and nurses who had classroom experience with asthmatic children.[4] When asked if case findings stigmatize the child, 20 percent of the allergists, 28 percent of the

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[1]Ibid., pp. 104-105.

[2]Michele Hindi-Alexander, "The Team Approach in Asthma," Journal of Asthma 12 (December 1974): 82.

[3]Ibid.

[4]Sakina N. Bharani and John S. Hyde, "Chronic Asthma and the School," The Journal of School Health 46 (January 1976): 24-30.

pediatricians, 24.5 percent of the teachers, 23.5 percent of the nurses, and 25.5 percent of the teacher/nurses said "yes." Large differences were noted when the participants were asked if teachers or nurses provided excuses for the child during inclement weather or mild asthma. Of the allergists, 13 percent said "yes," while 28 percent of the pediatricians, 60.5 percent of the teachers, 53 percent of the nurses, and 68 percent of the teacher/nurses said "yes." Of all the allergists responding, 67 percent thought the children should engage in physical education classes as opposed to 84 percent of the pediatricians. When asked if modified gym activities with the omission of endurance exercises were acceptable, 83 percent of the allergists and 54 percent of the pediatricians agreed that they were acceptable. Pre-medication before physical activity was advised by 67 percent of the allergists and 46 percent of the pediatricians. Swimming was recommended as a useful activity by 53 percent of the allergists and 54 percent of the pediatricians.[1]

Alderson reported a ten week pilot program, jointly sponsored by the YMCA of Greater New York, the New York Lung Association, the Brooklyn Tuberculosis and Lung

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[1]Ibid., pp. 25-26.

Association, the Queensboro Lung Association, and local hospitals, to improve asthmatic children's psychological and social well being, to teach them how to cope with their breathing problems, and to provide a place where the children could engage in vigorous physical activity.[1] All of the children involved were certified by a physician as having moderate or severe asthma. Physicians, pediatric allergists, a chest physician, a behavioral scientist, a chest physiotherapist, and a public nurse were directly affiliated with the program. Although no statistical data were presented, Alderson stated that after the program the children had gained in self confidence and in the amount of physical activity that they could perform and that there was a more relaxed, controlled way of breathing exhibited by the children.[2]

Few of the reported studies in the related literature have shown significant statistical differences in the affective domain of children. Nonstatistical trends have been noted in several of the reports. The present study focused partially on providing some statistical

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[1]David M. Alderson, "Are There Asthmatics in Your 'Y'?" The Journal of Physical Education 74 (January-February 1977): 67.

[2]Ibid.

evidence for the validation or invalidation of some of the concepts expressed in the related literature.

Chapter III presents the procedures followed in the development of the study.

CHAPTER III

PROCEDURES FOR THE STUDY

The procedures followed in the development of the study are described in this chapter under the following headings: Preliminary Procedures, Selection of the Subjects, Selection and Development of the Instruments, Collection of Data, Tabulation and Analysis of Data, and Preparation of the Final Report.

Preliminary Procedures

The investigator developed a tentative outline for the proposed study after reviewing the information available from documentary and human sources pertinent to the study. This outline was presented to the members of the thesis committee and revised according to their suggestions.

A series of cooperative meetings involving Denton Independent School District personnel, representatives from the Dallas Area American Lung Association, and staff members of the Bureau of Education for the Handicapped Project on Physical Education and Recreation for the Handicapped at the Texas Woman's University were held to

determine the details for implementation of the planned research project which was funded partially through an institutional research grant at the Texas Woman's University.[1]

The required forms for approval of the study were submitted to the Human Research Committee of the Texas Woman's University. Upon completion of these procedures, the revised outline of the approved study was filed in the form of a Prospectus in the Office of the Dean of Graduate Studies.

Selection of the Subjects

The sampling design was that of cluster purposive sampling with all fourth, fifth, and sixth grade children in three selected elementary schools in Denton, Texas, serving as subjects. The specific schools to be included were chosen by the Director of School Health Services of the Denton Independent School District in consultation with each of the school's nurses and the principals to be involved. The major criterion used in this purposive selection was the number of asthmatic children enrolled

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[1]Claudine Sherrill, "School Absenteeism, Physical Fitness, and Motor Performance: A Comparison of Asthmatic Children and Their Non-Asthmatic Peers," Texas Woman's University Institutional Grant, 1976-1977.

and/or identified at each school. To assist in this procedure, the following table was developed to describe the number of asthmatic and non-asthmatic children in each of the seven elementary schools comprising the Denton ISD.

TABLE 1

DESCRIPTION OF THE POPULATION OF ELEMENTARY SCHOOL CHILDREN IN DENTON, TEXAS

School	Total Enrollment	Identified Asthmatics
Borman	708	36
Ginnings	635	30
Jefferson Davis	249	10
Newton Rayzor	835	40
Robert E. Lee	705	40
Stonewall Jackson	349	18
Woodrow Wilson	767	36

Selected as the clusters to provide subjects were the Frank Borman Elementary, Ginnings Elementary, and Newton Rayzor Elementary Schools. A total of 791 children, or approximately 44 percent of all fourth, fifth, and sixth grade children in Denton, thus provided data for the study.

Asthmatic or non-asthmatic status of each subject was determined by the Director of School Health Services of the Denton Independent School District, who collected such information on each child routinely at the beginning of every academic year. A list of all asthmatic children in the three selected schools was given to the investigator, who deleted all special education children from the final data so that the subjects would be characterized by no handicapping condition other than asthma. This procedure resulted in a final sample size of 50 asthmatic children and 741 non-asthmatic children, who ranged in age from nine to thirteen years. The mean age for the asthmatic group was 10.56 years. The mean age for the non-asthmatic group was 10.62 years.

Selection and Development of the Instruments

Three major instruments were used in the collection of data. The Way I Feel About Myself Self-Concept Scale, the Children's Attitude Inventory Toward Physical Education, and a paired comparison inventory called the Game of Pairs were all administered in a written format. Prior to their use in the study, these instruments were reviewed in great detail by the three principals of the

schools providing subjects. A meeting between the three principals and Dr. Claudine Sherrill was held in January 1977 to discuss the instruments and to make revisions and/or changes required by the principals.

Two of the instruments, The Way I Feel About Myself Self-Concept Scale and the Children's Attitude Inventory Toward Physical Education (CAIPE), were selected because of their demonstrated reliability and validity. The paired comparison technique was used because it provided a forced choice ranking of all of the school subjects in which the children were involved. Classroom teachers at their respective schools administered each of the tests in three sessions lasting forty-five minutes. A description of each instrument follows.

The Way I Feel About Myself Self-Concept Scale

This instrument was developed by Piers and Harris in 1964 to determine how elementary school age children felt about themselves.[1] A review of the related literature shows that it is the most widely used self-concept test on the market at this time. The eighty items covered behavior, general and academic status, physical appearance and

[1]Piers and Harris, "Age and Other Correlates of Self-Concept in Children," pp. 91-95.

attributes, anxiety, popularity, and happiness and satisfaction. The statements were appropriate to the reading levels of elementary school children and reflected the concerns of children at that age. If the statement was perceived as true about himself, the child circled "yes" at the end of the statement. If the statement was perceived as false, then the child circled "no."

Piers and Harris reported reliability coefficients between .71 and .72 using the test-retest technique on 181 subjects.[1] Validity was originally established on a comparison of the scores of eighty-eight retarded females with the scores of non-retarded children. A copy of the instrument appears in appendix B.

Children's Attitude Inventory Toward Physical Education

The Children's Attitude Inventory Toward Physical Education was originally developed by Toulmin in 1973 to fill the void of instruments available to obtain elementary school age children's opinions about physical education.[2] Sherrill and three principals from the elementary schools

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[1]Ibid., p. 94.

[2]Toulmin, "The Development of an Original Instrument to Measure the Expressed Attitudes of Children Toward the Elementary School Program of Physical Education."

in this study revised the Toulmin instrument and renamed it the Children's Attitude Inventory Toward Physical Education. The revised instrument is the one used in the present study. Using the odd-even technique on the scores of 315 fourth, fifth, and sixth graders, reliability was established at .91. Validity was determined by the method of known groups. Significant differences were found between athlete and non-athlete groups.[1]

This instrument consists of fifty statements regarding physical activity and physical education classes. Each statement is followed by a seven point Likert scale on which the student indicates a range of agreement extending from "strongly agree" to "strongly disagree." A copy of this instrument and a chart showing the weighting of topics in the instrument appear in appendix C.

Paired Comparison Instrument

The paired comparison instrument called A Game of Pairs allowed for a comparison of each of the ten school subjects in the regular curriculum of the Denton Independent School District with each of the other subjects. It was developed specifically for this study. This forced choice comparison allowed the investigator to rank the

[1]Ibid., p. 86.

school subject preference of each child. The paired comparison consisted of two rows of school subjects directly across from each other, a total of forty-five pairs. The child placed a check by the subject that he liked the best of the two.

The paired comparison inventory is adaptable to situations requiring rank ordering of items. Edwards reported reliability coefficients of .87-.88 using a paired comparison to measure attitudes of 175 and 174 college students.[1] A copy of the paired comparison and the tabulation form used in the present study appear in appendix D.

Collection of Data

A time schedule was developed so that all three of the tests were administered by the regular classroom teachers in three separate, forty-five minute sessions during the spring semester of the academic year of 1976-1977. Bureau of Education for the Handicapped Project staff from the Texas Woman's University delivered and picked up the test forms from the principals of the schools.

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[1]Edwards, Techniques of Attitude Scale Construction, p. 49.

Arrangements were made with the principals for children who were absent during any testing period to take the test at a later date. These data were collected and added to the data from the first testing sessions. The principals also provided a list of all the children's names, ages, and sexes in the fourth, fifth, and sixth grades of their respective schools.

Scoring keys were made for The Way I Feel About Myself and CAIPE test forms. Scoring on the paired comparison was accomplished by counting the number of times that each school subject was chosen. Ranks were assigned to all of the school subjects; however, only the rankings of physical education are included in this investigation. Bureau of Education for the Handicapped Project staff were instructed in the proper method of scoring tests and were provided with scoring keys. The resulting scores on the three tests appear in the raw data tables of appendix E.

Tabulation and Analysis of Data

After the tests were scored, the investigator organized the information from The Way I Feel About Myself Self-Concept Scale, the Children's Attitude Inventory Toward Physical Education, the paired comparison rankings, and demographic data into tables for the appendix. These

tables appear on pages 147 to 221. The data concerning age, sex, grade, asthmatic status, The Way I Feel About Myself scores, CAIPE scores, and paired comparison rankings of physical education were transferred to computer cards according to the procedures outlined by Mr. Bob Hancock, Director of the Texas Woman's University Data Processing Center, and Ms. Roberta Woods, Educational Programmer.

The IBM 360-30 computer was used to determine the descriptive statistics of range, mean, standard deviation, and standard error of the mean for the ages, scores on The Way I Feel About Myself scale, and s ores on the CAIPE for the asthmatic and non-asthmatic groups. Tables of these descriptive statistics were prepared and are presented in Chapter IV, Analysis of Data. Other tables included in Chapter IV are the rankings of physical education by: asthmatic and non-asthmatic children, males and females, asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females.

The IBM 360-30 was used to compute a one-way analysis of variance from the Statistical Package for the Social Sciences to determine if there were significant differences between the asthmatic and non-asthmatic groups on ages, scores on The Way I Feel About Myself, and scores

on the Children's Attitude Inventory Toward Physical Education. The results are discussed in Chapter IV.

Point biserial correlations were computed using the IBM 360-30 to show relationships between sex and scores on The Way I Feel About Myself, sex and scores on the CAIPE, and sex and the rankings of physical education. The formula used to compute the point biserial correlation[1] was:

$$r_{pb} = \frac{\bar{Y}_1 - \bar{Y}_0}{S_y} \sqrt{\frac{N_1 N_0}{N(N-1)}}$$

Pearson Product-Moment correlations were used to show the relationships between age and self-concept and between age and CAIPE scores. The computer used the following formula:[2]

$$r = \frac{N\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{(N\Sigma X^2 - (\Sigma X)^2)(N\Sigma Y^2 - (\Sigma Y)^2)}}$$

Kendall Rank-Order correlation was used by the computer to determine the relationship between age

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[1]James L. Bruning and B. L. Kintz, Computational Handbook of Statistics (Glenview, Illinois: Scott, Foresman, and Company, 1968), p. 163.

[2]Ibid., p. 153.

differences and the rankings of physical education. The following formula[1] was used:

$$\underline{\text{tau}} = \frac{P-Q}{\frac{1}{2}N(N-1)}$$

The relationships between asthmatic status and self-concept scores, asthmatic status and CAIPE scores, and asthmatic status and rankings of physical education were examined by the computer using the point biserial correlation. The same formula presented above for the point biserial correlation was used again. A matrix of all correlations was developed and discussed.

A chi square was used to determine if there were significant differences between the rankings of physical education by asthmatic and non-asthmatic groups. The investigator analyzed the differences in the number of asthmatic and non-asthmatic subjects who ranked physical education as 1-2, 3-4, 5-6, 7-8, and 9-10. When expected frequencies in a cell were less than five, the Yates correction formula[2] was used as follows:

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[1] Ibid., p. 159.

[2] N. M. Downie and R. W. Heath, Basic Statistical Method, 4th ed. (Evanston, Illinois: Harper and Row, Publishers, 1970), pp. 196-198.

$$\chi^2 = \frac{(|O-E|-.5)^2}{E}$$

The correction formula was used also when only one degree of freedom was allowed.

The chi square technique was used also to determine if there were significant differences between the way asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females ranked physical education and to determine significant differences between the way males and females ranked physical education. Chapter IV thus includes fifteen tables. Additional tables of raw data are included in the appendix.

Preparation of the Final Report

The writing of the final report entailed submitting the chapters to the committee members, making corrections in accordance with their suggestions, and then revising each chapter. A summary of the research was prepared, and the findings were presented and interpreted. Recommendations for further studies were made. An appendix and a bibliography were developed.

An analysis of the findings of the study is presented in Chapter IV.

CHAPTER IV

ANALYSIS OF DATA

The purpose of this study was to obtain information on the self-concepts and attitudes toward physical education of 50 asthmatic and 741 non-asthmatic children. The subjects were all students in the fourth, fifth, and sixth grades at three selected elementary schools in the Denton, Texas, Independent School District. Table 2 indicates that twenty-six of the subjects were asthmatic boys and twenty-four of the subjects were asthmatic girls. The ages of the asthmatic children ranged from nine to twelve years for both boys and girls. The non-asthmatic population consisted of 367 boys, ages nine to twelve years, and 374 girls, ages nine to thirteen years.

Table 3 describes the ages of the two groups. The mean age of the asthmatic group was 10.56 years. The standard deviation of 0.91 and the standard error of the mean of 0.13 were appropriate for the sample size. The mean age of the non-asthmatic group was 10.62 years. The standard deviation of 0.89 and the standard error of the mean of 0.03 were appropriate for the sample size.

TABLE 2

CLASSIFICATION OF SUBJECTS BY AGE, SEX,
AND ASTHMATIC CONDITION

Age	Asthmatic			Non-Asthmatic		
	Boys	Girls	Total	Boys	Girls	Total
9	3	3	6	34	41	75
10	9	9	18	117	138	255
11	9	9	18	157	142	299
12	5	3	8	59	45	104
13	0	0	0	0	8	8
Total	26	24	50	367	374	741

TABLE 3

DESCRIPTIVE DATA FOR THE AGES OF THE SUBJECTS IN THE TWO GROUPS

Group	Range	Mean	S.D.	SE_m
Asthmatic (N=50)	3 (9-12)	10.56	0.91	0.13
Non-Asthmatic (N=741)	4 (9-13)	10.62	0.89	0.03

The findings resulting from a one-way analysis of variance for the ages of the two groups are presented in table 4. The F ratio of .18 reveals that the asthmatic group is not significantly different from the non-asthmatic group with respect to age.

TABLE 4

COMPARISON OF ASTHMATIC AND NON-ASTHMATIC CHILDREN WITH RESPECT TO AGE

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	0.14	0.14	0.18
Within	789	631.70	0.80	
Total	790	631.84		

$F_{1,789}$ (.05) = 3.84

Information about the subjects' self-concepts was obtained by a written administration of The Way I Feel About Myself Self-Concept Scale. This scale, which contained eighty items, was developed specifically to measure the self-concepts of elementary school age children. About one-half of the statements are simple, declarative statements about one's self, and the other one-half are negative statements about one's self. Each statement has been predetermined to indicate either high self-concept or low, inadequate self-concept. The subject was to circle "yes" or "no" after the statement, depending upon whether or not he thought the statement was true about himself. A total score for self-concept was obtained by adding the values assigned to the circled answers for each statement. A high score reflects a high self-concept, whereas a low score reflects a poor self-concept.

Table 5 provides a description of the subjects' self-concepts. The mean score for the asthmatic children was 58.54. The mean score for the non-asthmatic children was 58.61. The asthmatic group's scores ranged from twenty-six to seventy-six. The non-asthmatic group's scores ranged from a low score of seven to a high score of eighty. The low score of seven indicates that other factors besides an asthmatic condition may account for a

poor self-concept. The standard deviations and standard errors of the mean for the two groups (11.95 and 1.69 for asthmatic children; 13.02 and 0.48 for non-asthmatic children) were appropriate for the sample size. These scores were similar to scores in other studies using the Piers-Harris instrument.

TABLE 5

DESCRIPTION OF SUBJECTS' SELF-CONCEPTS AS MEASURED BY THE WAY I FEEL ABOUT MYSELF SELF-CONCEPT SCALE

Group	Range*	Mean	S.D.	SE_m
Asthmatic (N=50)	50 (26-76)	58.54	11.95	1.69
Non-Asthmatic N=732)	73 (7-80)	58.61	13.02	0.48

*Highest possible score is 80

A one-way analysis of variance on the self-concept scores of the asthmatic and non-asthmatic groups is presented in table 6. The analysis of variance yielded no significant differences between the two groups on self-concept.

TABLE 6

A COMPARISON OF ASTHMATIC AND NON-ASTHMATIC CHILDREN WITH RESPECT TO SELF-CONCEPT

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	0.22	0.22	0.00
Within	780	130832.68	167.73	
Total	781	130832.90		

$F_{1,781}$ (.05) = 3.84

Information in table 7 was obtained from the Children's Attitude Inventory Toward Physical Education which was modified from an original instrument designed by Toulmin to measure the expressed attitudes of elementary school children toward their physical education classes. The CAIPE contained fifty statements concerning physical activity and physical education classes. At the end of each statement was a seven point Likert scale ranging from "strongly agree" to "strongly disagree." An equal number of favorable and unfavorable statements toward physical education were included in the inventory. Values were assigned accordingly to the points on the Likert scale so that the higher a student scored on the CAIPE, the more favorable was his attitude toward physical education. The

score was determined by adding the values of the points on the scale indicated by a student as his opinion about each statement as it related to him. The maximum possible favorable score that a student could have on the CAIPE was 350.

TABLE 7

DESCRIPTION OF THE SUBJECTS' ATTITUDES TOWARD PHYSICAL EDUCATION AS MEASURED BY THE CHILDREN'S ATTITUDE INVENTORY TOWARD PHYSICAL EDUCATION

Group	Range*	Mean	S.D.	SE_m
Asthmatic (N=50)	184 (151-335)	248.78	45.35	6.42
Non-Asthmatic (N=732)	264 (86-350)	249.13	48.04	1.78

*Maximum possible score is 350

Table 7 reveals that the mean score for the asthmatic group on the CAIPE was 248.78. The mean score for the non-asthmatic group was 249.13. For the non-asthmatic group, the low (86) score in the range of scores reflects a very unfavorable attitude toward physical education, while the score of 350 reflects the maximum possible favorable score. The asthmatic children's scores ranged from 151 to 335. With a standard deviation of

45.35, approximately 68 percent of the asthmatic children scored between 203 and 295 on the CAIPE. For the non-asthmatic children, having a standard deviation of 48.04, 68 percent scored between 201 and 298.

The findings resulting from a one-way analysis of variance for the attitudes toward physical education of the two groups are presented in table 8. The F ratio of .00 reveals that the two groups were not significantly different with respect to attitudes toward physical education.

TABLE 8

COMPARISON OF ASTHMATIC AND NON-ASTHMATIC CHILDREN WITH RESPECT TO ATTITUDES TOWARD PHYSICAL EDUCATION

Source	Degrees of Freedom	Sum of Squares	Mean Square	F
Between	1	5.73	5.73	0.00
Within	780	1787599.25	2291.74	
Total	781	1787564.98		

$F_{1,781}$ (.05) = 3.84

The second instrument used to compare the two groups on their attitudes toward physical education was a paired comparison inventory. The child was presented with two school subjects in the regular curriculum. He placed a check by the one class that he preferred over the other. Each of the ten possible school subjects were opposed to all other possible subjects. A class could be chosen a maximum of nine times if it was preferred over all other school subjects. If a child expressed preference of all other classes to a particular subject (such as physical education or handwriting), then that subject received zero. For each child's expressed preferences, all ten school subjects were ranked one through ten according to the number of times chosen by that child. A subject chosen more times than any other was ranked first and a subject chosen fewer times than any other was ranked tenth.

Table 9 describes the frequency of rankings assigned to physical education by asthmatic and non-asthmatic children. Physical education appeared to be a popular subject, being ranked first or second by 50 percent of the asthmatic group and 47 percent of the non-asthmatic group. Only 6 percent of the asthmatic group and 9 percent of the

non-asthmatic group ranked physical education as ninth or tenth.

TABLE 9

SUMMARY OF RANKINGS OF PHYSICAL EDUCATION AS CHOSEN BY ASTHMATIC AND NON-ASTHMATIC CHILDREN, AGES NINE TO THIRTEEN, ON THE PAIRED COMPARISON

Ranking	Asthmatics			Non-Asthmatics		
	N	%	χ^2	N	%	χ^2
1-2	25	50	0.03	346	47	0.00
3-4	12	24	0.00	165	23	0.00
5-6	3	6	0.88	87	12	0.06
7-8	7	14	0.51	70	9	0.03
9-10	3	6	0.14	64	9	0.01
Total	50	100	---	732	100	1.66

χ^2 with 4 df (.05) = 9.5

The investigator hypothesized that there were no significant differences between the frequency of rankings of physical education by asthmatic and non-asthmatic groups. The total chi square value of 1.66 for the differences between the two groups' rankings is not significant at the .05 level. The tabled value for significance

at the .05 level with four degrees of freedom is 9.5. It was noted that none of the values exceeded 1.00. It would appear that asthmatic status was not significantly related to the frequency of rankings of physical education.

Table 10 reveals that 55 percent of the males and 40 percent of the females ranked physical education first or second. Conversely, 11 percent of the females and 6 percent of the males ranked physical education ninth or tenth.

TABLE 10

SUMMARY OF RANKINGS OF PHYSICAL EDUCATION AS CHOSEN BY MALES AND FEMALES, AGES NINE TO THIRTEEN, ON THE PAIRED COMPARISON

Ranking	Males			Females		
	N	%	χ^2	N	%	χ^2
1-2	214	55	4.70	157	40	4.63
3-4	79	20	0.79	98	25	0.77
5-6	40	11	0.39	50	12.5	0.38
7-8	31	8	1.18	46	11.5	1.16
9-10	24	6	2.30	43	11	2.26
Total	388	100	---	394	100	18.56*

χ^2 with 4 df (.001) = 18.5

The investigator hypothesized that there were no significant differences between the frequency of rankings of physical education by males and females. The total chi square value of 18.56 is statistically significant at the .001 level. The greatest differences appeared between the rankings of one and two by both males and females. Values for the differences between all other rankings were generally small and numerically close for the two groups. It would appear that sex was significantly related to the rankings of physical education.

In further investigation, comparisons of physical education rankings by asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females are presented in tables 11-15. Each interval of ranking (1-2, 3-4, 5-6, 7-8, and 9-10) is compared for the four groups to determine significant differences.

The chi square formula was applied to ascertain any significant differences. The tabled value for significance at the .05 level with one degree of freedom is 3.84. None of the chi square totals reached that level. It would appear that asthmatic status was not significantly related for the male and female groups on their rankings of physical education.

TABLE 11

SUMMARY OF RANKINGS ONE AND TWO OF PHYSICAL EDUCATION BY ASTHMATIC AND NON-ASTHMATIC MALES AND FEMALES ON THE PAIRED COMPARISON

	Asthmatic	Non-Asthmatic
Male	O=14 E=14.42 χ^2=0.00	O=200 E=199.58 χ^2=0.00
Female	O=11 E=10.58 χ^2=0.00	O=146 E=146.42 χ^2=0.00

Total chi square=0.00
χ^2 with 1 df (.05)=3.84

TABLE 12

SUMMARY OF RANKINGS THREE AND FOUR OF PHYSICAL EDUCATION BY ASTHMATIC AND NON-ASTHMATIC MALES AND FEMALES ON THE PAIRED COMPARISON

	Asthmatic	Non-Asthmatic
Male	O=8 E=5.36 χ^2=0.85	O=71 E=73.64 χ^2=0.06
Female	O=4 E=6.64 χ^2=0.69	O=94 E=91.36 χ^2=0.05

Total chi square=1.65
χ^2 with 1 df (.05)=3.84

TABLE 13

SUMMARY OF RANKINGS FIVE AND SIX OF PHYSICAL EDUCATION BY ASTHMATIC AND NON-ASTHMATIC MALES AND FEMALES ON THE PAIRED COMPARISON

	Asthmatic	Non-Asthmatic
Male	O=0 E=1.33 χ^2=0.52	O=40 E=38.67 χ^2=0.02
Female	O=3 E=1.67 χ^2=0.41	O=47 E=48.33 χ^2=0.01

Total chi square=0.96
χ^2 with 1 df (.05)=3.84

TABLE 14

SUMMARY OF RANKINGS SEVEN AND EIGHT OF PHYSICAL EDUCATION BY ASTHMATIC AND NON-ASTHMATIC MALES AND FEMALES ON THE PAIRED COMPARISON

	Asthmatic	Non-Asthmatic
Male	O=2 E=2.82 χ^2=0.04	O=29 E=28.18 χ^2=0.00
Female	O=5 E=4.18 χ^2=0.02	O=47 E=48.33 χ^2=0.00

Total chi square=0.06
χ^2 with 1 df (.05)=3.84

TABLE 15

SUMMARY OF RANKINGS NINE AND TEN OF PHYSICAL EDUCATION BY ASTHMATIC AND NON-ASTHMATIC MALES AND FEMALES ON THE PAIRED COMPARISON

	Asthmatic	Non-Asthmatic
Male	O=2 E=1.20 χ^2=0.08	O=6 E=6.80 χ^2=0.01
Female	O=1 E=1.80 χ^2=0.05	O=11 E=10.20 χ^2=0.01

Total chi square=0.15
χ^2 with 1 df (0.05)=3.84

Correlations between variables studied in this investigation were computed and are summarized in table 16. The relationships between age and self-concept scores and between age and CAIPE scores were examined with a Pearson Product-Moment correlation. The resulting correlations between age and self-concept scores and between age and CAIPE scores were 0.00 and -0.08 respectively, neither of which was significant at the .05 level.

Kendall's rank-order correlation was computed to determine the relationship between age differences and ranking of physical education. Kendall's tau is indicated for use with sets of rankings. Ages of nine, ten, eleven, twelve, and thirteen year old children were correlated

TABLE 16

MATRIX OF CORRELATIONS BETWEEN VARIABLES: SELF-CONCEPT, CAIPE, RANKING OF PHYSICAL EDUCATION, AGE, SEX, AND ASTHMATIC STATUS

	Self-Concept	CAIPE	PE Rank	Age	Sex	Asthmatic Status
Self-Concept	----	0.29**	-0.01	0.00	-0.06	0.01
CAIPE		----	-0.22**	-0.08*	-0.02	0.01
PE Rank			----	0.03	0.15**	0.00
Age				----	-0.06	-0.01
Sex					----	-0.04
Asth. Status						----

*indicates significance at .05 level
**indicates significance at .001 level

with their rankings of physical education. The correlation (0.03) was not significant at the .05 level. Age differences were not significantly correlated with rankings of physical education.

To determine if sex differences were related to the self-concept scores of the two groups, a point biserial correlation (-0.06) was computed. The point biserial correlation is indicated when using one dichotomous variable, such as sex, and one continuous variable. No significant correlation was found between sex and self-concept scores.

The relationship between sex differences and CAIPE scores was also investigated with a point biserial correlation. The resulting correlation was -0.02, which is not significant at the .05 level.

A point biserial correlation was computed to determine the relationship between sex differences and rankings of physical education. A correlation of 0.15 between sex and ranking of physical education was significantly different from zero at the .001 level. Males preferred physical education over other school subjects significantly more than did females.

The relationships between asthmatic status and self-concept scores, CAIPE scores, and ranking of physical

education were studied using the point biserial correlation. All correlations were very low, none significant at the .05 level. The relationship between asthmatic status and self-concept scores was 0.01. The correlation between asthmatic status and CAIPE scores was also 0.01. Asthmatic status and physical education were similarly correlated at 0.00.

For this sample of 50 asthmatic and 741 non-asthmatic children, there was no relationship between self-concept and asthmatic status. There was no relationship between expressed attitude toward physical education and asthmatic status. The relationship between sex differences and the rankings of physical education as a preferred subject was significantly different from zero.

In Chapter V will be presented the summary, conclusions, and recommendations for further studies.

CHAPTER V

SUMMARY, CONCLUSION, AND RECOMMENDATIONS FOR FURTHER STUDIES

This study was undertaken to identify the differences between asthmatic and non-asthmatic children, ages nine through twelve, on self-concept and attitudes toward physical education. The subjects were 50 asthmatic and 741 non-asthmatic children attending three elementary schools in the Denton Independent School District. All children enrolled in grades four, five, and six of the three schools were administered the instruments during February and March of 1977. It was anticipated that children having an asthmatic condition might reflect significantly different scores from their non-asthmatic peers at least partially attributable to their perceptions of themselves as asthmatic.

Related literature was presented in Chapter II under four headings: Identification and Measurement of Self-Concept in Children; Self-Concept and Physical Fitness; Attitudes Toward Physical Education; and Asthma, Self-Concepts, and Attitudes Toward Physical Education. The review was limited to literature published between

1963 and 1977. Wylie's compendium of self-concept research (1961) was cited as comprehensively covering research prior to the 1960s.

Several techniques for measuring the self-concepts of children were reviewed. Combs, Soper, and Courson (1963) and LaBenne and Greene (1969) discouraged the use of self-report as a method of measuring self-concepts, whereas Micheal, Plass, and Lee (1973) showed that the self-report may be a valid predictor of self-concepts. Bennet (1964) developed a Q-sort for self-concept measurement, while Brookover, Thomas, and Patterson (1964) used a multiple choice questionnaire. Bledsoe (1964) used an adjective checklist to correlate self-concept with achievement and anxiety. Morse (1964) studied self-concept differences with a semantic differential instrument. Coopersmith (1967) extensively researched the self-concepts of children using an original inventory, as did Sears (1963). The Tennessee Self-Concept Scale (1965), although widely used with subjects ages twelve and over, was administered only in one study (Williams and Cole, 1968) included in the present review of literature. Guardo (1968) and Guardo and Bohan (1971) attempted to obtain more accurate measures of self-concept

through the interview technique than appeared possible with traditional tests. Bolea, Felker, and Barnes (1971) developed a pictorial self-concept scale for children in kindergarten through fourth grade.

One instrument has been used with elementary school children more than any other. The Way I Feel About Myself Self-Concept Scale was developed by Piers and Harris (1964) specifically for use with elementary school age children. In studies relating specifically to the relationship between self-concepts and physical fitness, the Piers and Harris scale was used by Felker and Kay (1971), Kay, Felker, and Varoz (1972), and Phelan (1973).

Other researchers who examined relationships for adolescent subjects between self-concept, physical fitness, motor ability, and other selected psychomotor variables with a variety of different instruments and techniques included Zakrajsek (1966), Clifford and Clifford (1967), Koocher (1971), McGowan, Jarman, and Pederson (1974), and Sonstroem (1974). Adults were used in studies by Hellison (1969), Collingwood (1972), and Gary and Guthrie (1972). Investigators who focused specifically upon self-concept and disability and/or handicapping conditions and illness included Lewis (1971) and Gary and Guthrie (1972).

The review of literature pertaining to attitudes toward physical education was limited to research using elementary school children as subjects. Toulmin (1973) developed an original instrument to measure these attitudes. Sherrill's modification (1977) of this instrument was used in the present study. Other children's attitude inventories reviewed included Simon and Smoll's 1974 CATPA version of Kenyon's scales and Stensaasen's (1975) attitudinal statements. Smoll, Schultz, and Keeney's 1976 work utilized the CATPA instrument with 127 boys and 137 girls in grades four, five, and six.

Literature reviewed pertaining to asthma and/or general disability and self-concepts included the classic book by Wright (1960), a critical appraisal of psychosomatic research in asthma by Purcell (1965), and studies by McElhenney and Peterson (1963, 1965), Herbert (1965), Clifford (1965), Millman, Grundon, Kasch, Wilkerson, and Headley (1965), van Dijl (1967), Clifford (1968), and Bharani and Hyde (1976).

Previous research conducted at the Texas Woman's University regarding asthma and exercise and using subjects from the same community as the present investigation was reviewed. This included the works of Franklin (1971)

and Claverie (1971), neither of whom attempted to measure nonphysical benefits of exercise.

The review of related literature substantiated the need for research describing the relationship between asthma and self-concept and asthma and attitudes toward physical education. It also provided the rationale for the selection of instruments in the present study.

In Chapter III, the procedures followed in the development of the present study were presented. Three major instruments were used in the collection of data. The Way I Feel About Myself Self-Concept Scale, comprised of eighty items, gave a measure of self-concept. The Children's Attitude Inventory Toward Physical Education, containing fifty statements, was used to determine the children's expressed attitudes toward physical education. The paired comparison instrument forced a comparison of each of the students' school subjects with all nine of his other subjects. After the child had marked his preferences, the ten school subjects were ranked one through ten. This ranking allowed the investigator to make inferences about the children's attitudes toward physical education in relation to their other school subjects.

The IBM 360-30 computer was used to determine the descriptive statistics on age, self-concepts, attitudes toward physical education, and rankings of physical education for the two groups. The resulting data were organized into tables in Chapter IV. A one-way analysis of variance was computed to determine significant differences between groups on ages, self-concept scores, and CAIPE scores. The point biserial correlational technique was used to determine correlations between sex and self-concept scores, sex and CAIPE scores, sex and the rankings of physical education, asthmatic status and self-concept scores, asthmatic status and CAIPE scores, and asthmatic status and the rankings of physical education. The Pearson Product-Moment correlational technique was used to determine the relationship between age and self-concept and between age and CAIPE scores. The Kendall Rank-Order correlational technique was used by the computer to determine the relationship between age differences and the rankings of physical education. A chi square was used to determine significant differences between all of the following: rankings of physical education by asthmatic and non-asthmatic children; rankings of physical education by males and females; and rankings of physical education

by asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females.

The findings of the study were presented in Chapter IV. The ages of the twenty-six asthmatic boys and twenty-four asthmatic girls ranged from nine to twelve, with an average of 10.56 years. The ages of the 367 non-asthmatic boys and 374 non-asthmatic girls ranged from nine to thirteen, with an average age of 10.62 years. The one-way analysis of variance computed on the two groups showed no significant difference between the ages of the subjects.

Attitudes toward physical education measured with the CAIPE revealed very similar scores for the two groups. The asthmatic children's mean score was 248.78, out of a possible 350. Their scores ranged from 151 to 335. For the non-asthmatic children, the mean score was 249.13, the lowest score being 86 and the highest score being 350. A one-way analysis of variance showed no significant differences between the asthmatic and non-asthmatic groups on their CAIPE scores.

The mean score for asthmatic children on The Way I Feel About Myself Self-Concept Scale was 58.54. Their scores ranged from twenty-six to seventy-six. The non-asthmatic group had a mean score of 58.61, with scores

ranging from seven to the maximum possible score of eighty. No significant differences were found between the two groups' scores with the use of a one-way analysis of variance.

Rankings for physical education based on data from the paired comparison inventory were tabulated according to three sets of variables: asthmatic group and non-asthmatic group; males and females; and asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females. Physical education was ranked as one or two as opposed to other school subjects by 50 percent of the asthmatic children and by 47 percent of the non-asthmatic children. A chi square yielded no significant differences between the asthmatic and non-asthmatic groups on their rankings of physical education. Significant difference at the .001 level was found between the rankings of physical education by males and females using a chi square. The chi square was used also to determine differences between the rankings of physical education by asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females. No significant differences were found at the .05 level for the four groups.

Correlations between sex and self-concept (-0.06) and between sex and CAIPE scores (-0.02) were not significant. Sex differences were significantly related to the rankings of physical education. Boys tended to rate physical education much higher than girls did. The correlation between age and self-concept (0.00) was not significant, nor was the correlation between age and CAIPE scores (-0.08). The ranking of physical education was not significantly correlated with age (0.03). Asthmatic status was not significantly correlated with self-concept (0.01), CAIPE scores (0.01), or the ranking of physical education (0.00).

The findings of the study led the investigator to accept the following hypotheses:

1. There was no significant difference between asthmatic and non-asthmatic children on self-concept as measured by The Way I Feel About Myself Self-Concept Scale

2. There was no significant difference between asthmatic and non-asthmatic children on expressed attitudes toward physical education as measured by the Children's Attitude Inventory Toward Physical Education

3. There was no significant difference between the frequency of rankings of physical education one

through ten on the paired comparison inventory by asthmatic and non-asthmatic children

4. There were no significant differences between the frequency of rankings of physical education one through ten on the paired comparison inventory by asthmatic males, asthmatic females, non-asthmatic males, and non-asthmatic females

5. There were no significant relationships between the following variables in this study: self-concept and age, CAIPE scores and age, rankings of physical education and age, sex and self-concept, sex and CAIPE scores, asthmatic status and self-concept, asthmatic status and CAIPE scores, and asthmatic status and rankings of physical education

The findings of the study led the investigator to reject the following hypotheses:

1. There was no significant difference between the frequency of rankings of physical education by males and females

2. There was no significant relationship between the variables of sex and rankings of physical education

Conclusion

Asthmatic and non-asthmatic children demonstrate no significant differences in self-concepts, attitudes toward physical education, and rankings of physical education as measured by the instruments used in this study. It appears, therefore, that much of the literature which suggests that wheezing, coughing, and other exercise induced asthmatic symptoms may influence self-concept and attitudes toward physical education is inaccurate. Both asthmatic and non-asthmatic children expressed favorable attitudes toward physical education.

Discussion

There may have been several factors which prevented the finding of significant differences between the asthmatic and non-asthmatic children. The instruments used in this study may not have been sensitive enough to describe subtle differences, although reliability and validity were acceptable. People like to see themselves as adequate rather than limited or restricted. This could have caused the asthmatic children to "over-compensate" by answering questions in such a manner that made the child appear like other non-handicapped children. Although classroom teachers were given exact instructions for the

method of test administration, it is possible that contamination of the data occurred by remarks made by the teachers prior to testing.

Another possibility is that these differences do not exist between asthmatic and non-asthmatic children. Asthma is not a highly visible condition and the severity of each child's condition is variable. Nearly all of the asthmatic children in this study were involved in the mainstream of education, including the regular physical education class.

Recommendations for Future Studies

Following are recommendations for future studies involving the use of asthmatic subjects:

1. Replication of the present study using adult subjects

2. Development of a fitness program for asthmatic children, emphasizing breathing control, upper body strength and endurance, and cardiovascular endurance, and using videotapes for feedback and measuring fitness and self-concept changes with standardized instruments.

3. Further analysis of data collected in this study with the Piers and Harris instrument, analyzing

the sections of physical appearance and attributes, anxiety, and happiness and satisfaction to determine if significant differences exist between asthmatic and non-asthmatic children.

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